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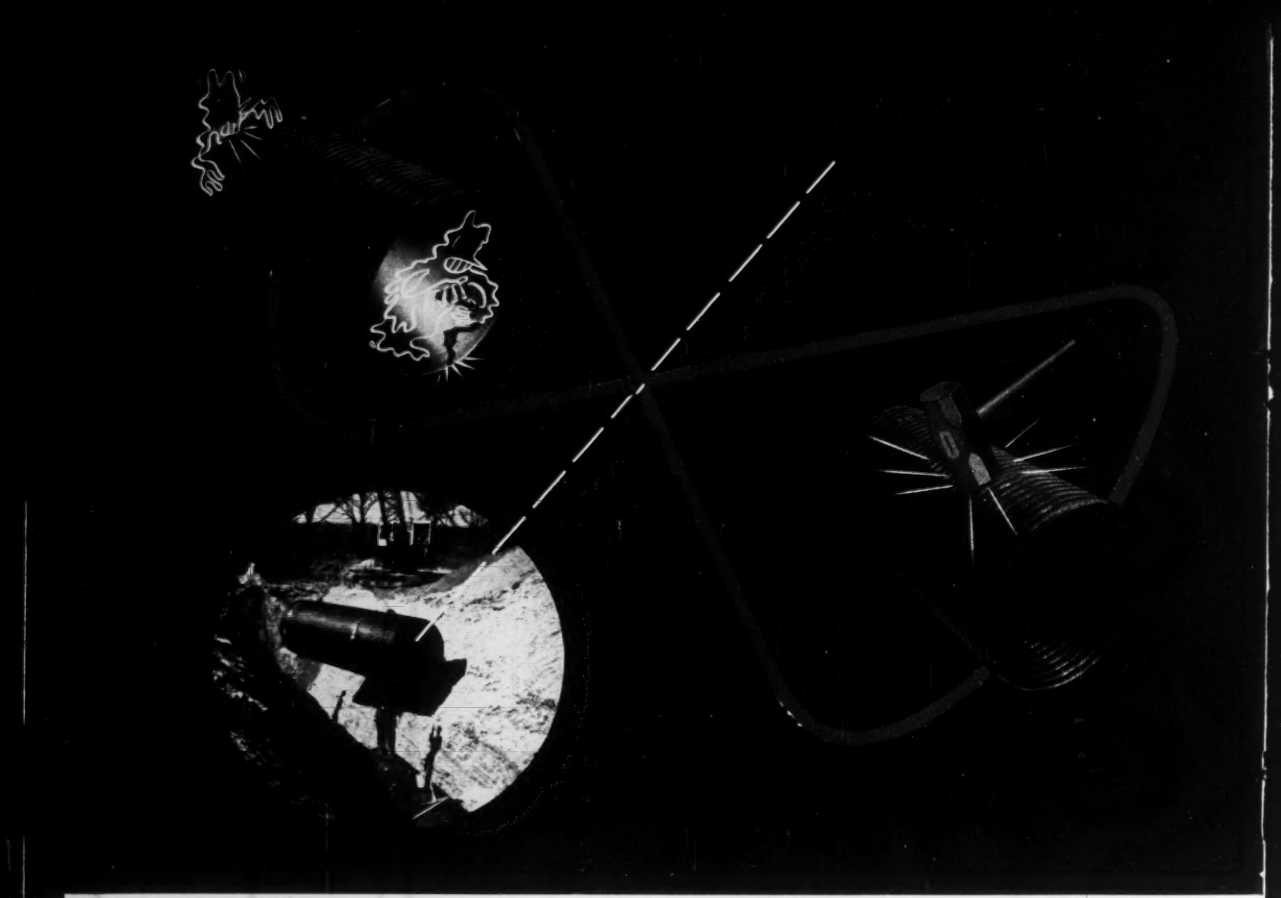

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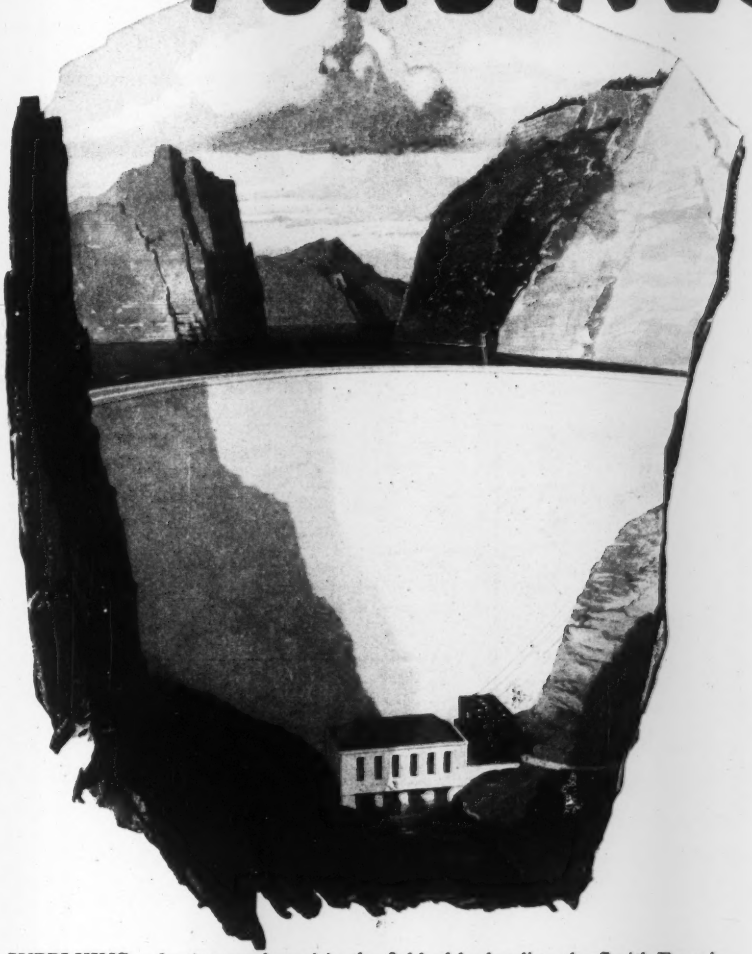

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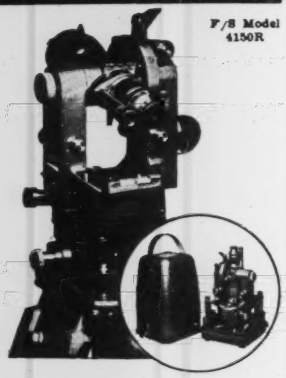

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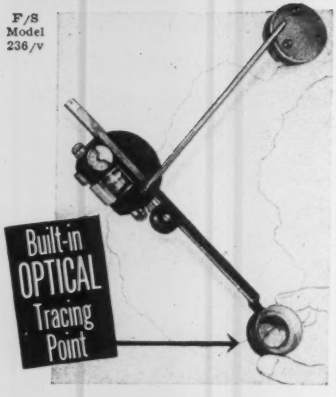

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Volume 149 · December 4, 1952 · No. 23

WALDO G. BOWMAN
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IT is when smooth handling is a requirement that you find out about crane operation. When you have to balance 50 ft. of 60 in. pipe and shove it into the next section—when you have to lower a cage down a pier face for the inspector to look the concrete over—when you have to hold steel for welding or riveting, set stone or balance a concrete bucket six stories up and hit the elephant trunk, that is when you appreciate the value of smoothness of operation.
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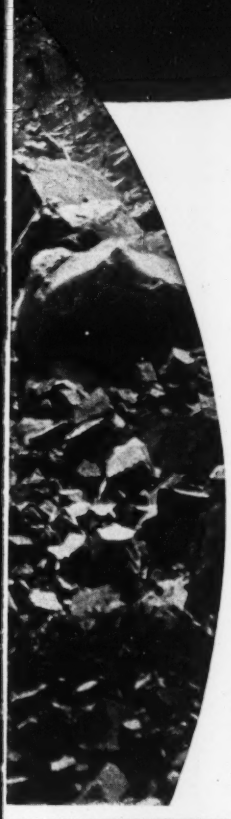

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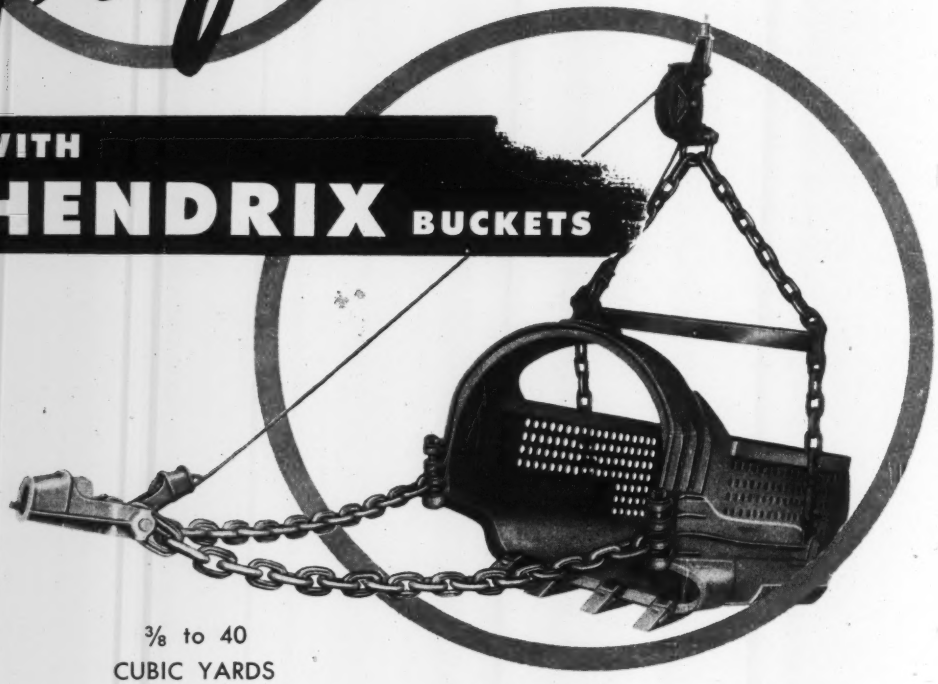

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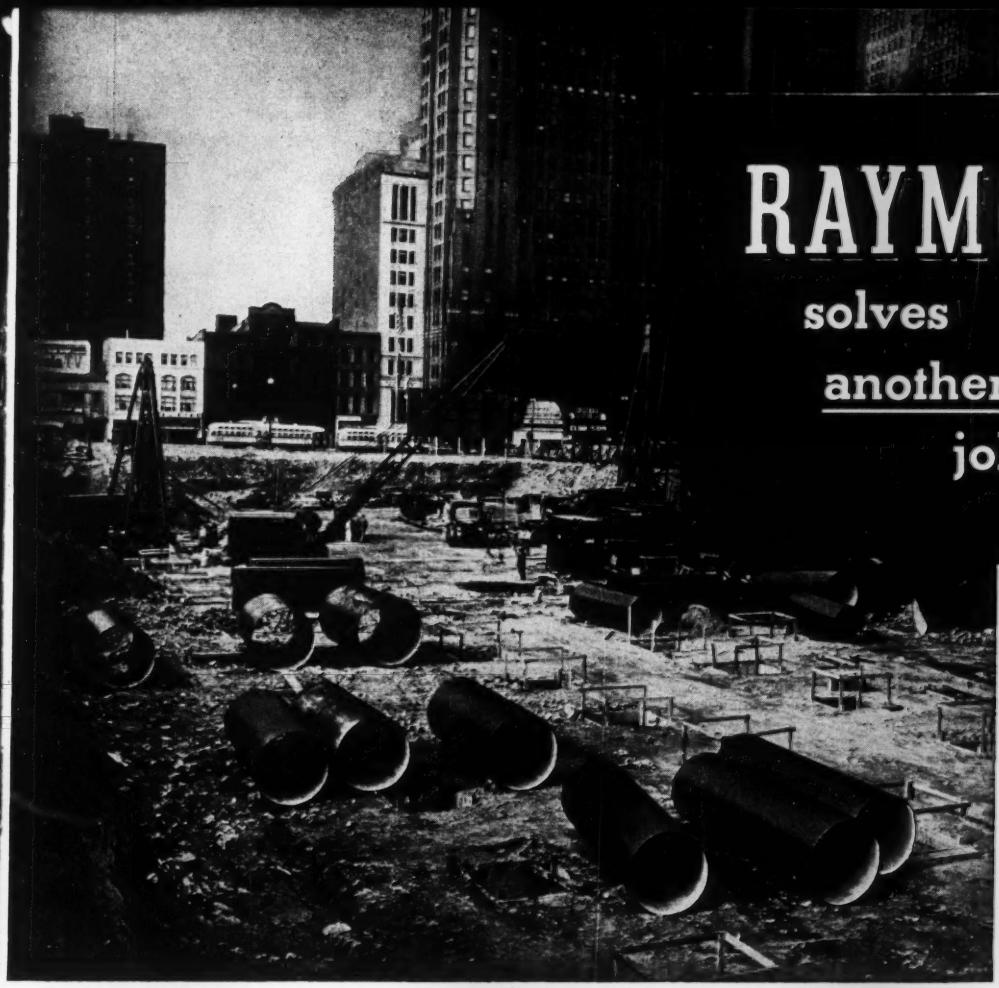

RAYMOND

solves another tough job!

at left
Sinking Gow caissons for Detroit's City-County Building

FOUNDATION CONTRACTOR:
O. W. Burke Co.

ARCHITECTS & ENGINEERS:
Harley, Ellington & Day, Inc.

CONSTRUCTED FOR:
Detroit-Wayne Joint Building Authority

. . . **To provide** the foundation for the City-County Building in Detroit's new Civic Center, Raymond placed 126 Gow caissons, with diameters of 48 to 74 inches, to depths exceeding 100 feet to hardpan. The caissons were belled out on the hardpan to varying diameters. Completion of this project ahead of schedule is another example of how Raymond engineers combine knowledge and experience with specially designed equipment to provide any type foundation anywhere. We would like to serve you on your next project.

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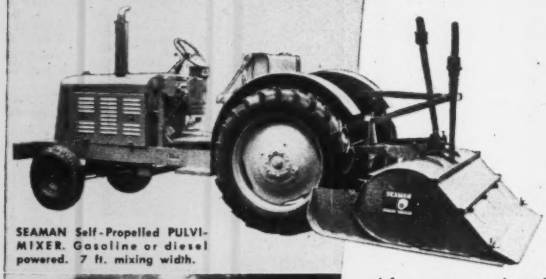
To save surface maintenance...

BUILD THE BASE with a SEAMAN

OLD 9 FOOT ROADWAY widened with crushed stone macadam. Bituminous surface (at left) covering SEAMAN-mixed macadam shows no defects after 2 years. Cracks in surface over old pavement (right) reflect cracks and shrinkage in the old base.



SEAMAN Self-Propelled PULVI-MIXER. Gasoline or diesel powered. 7 ft. mixing width.

SEAMAN Mixer mixing crushed stone for water-bound macadam base. An excellent type of road. Ideal for stabilizing sub-grade prior to laying concrete pavement.

★ This 20 page, illustrated SEAMAN Bulletin, *"Macadam Base Construction Methods"* is yours for the asking. Shows how modern methods can build strong, weather-resistant macadam bases quickly and economically. Send a post card requesting Bulletin 60.

MOST cracks and faults on a highway are a mark of insufficient stability in the base, sub-base or in both. Repairs simply hide the symptoms temporarily; they don't correct the cause.

Here's a case in point: a very old rigid type of roadway 9 feet wide, laid on a none too stable sub-grade, was widened by adding a crushed stone macadam base 11 feet in width. The stone was mixed, keyed and interlocked with the SEAMAN MIXER. In the same pass the SEAMAN also blended the fines to fill the voids more perfectly than by the costly, old method of hand-brooming. After pneumatic rolling the entire 20 foot roadway 8 miles in length was given a bituminous topping.

Two years later. The SEAMAN-mixed macadam showed no surface defects. (See left half of photo above) But the surface of the old road was badly marred by a series of cracks over the entire 8 miles. These faults reflect shrinkage, settling and cracks occurring in the original base.

The moral? Whatever type of construction you use — bituminous, soil-cement, macadam, gravel or any method of stabilizing soil, — build the base with a SEAMAN. Lowest in the original construction cost, it will pay back a hundred-fold in years and years of minimum maintenance.

SEAMAN MOTORS, INC.

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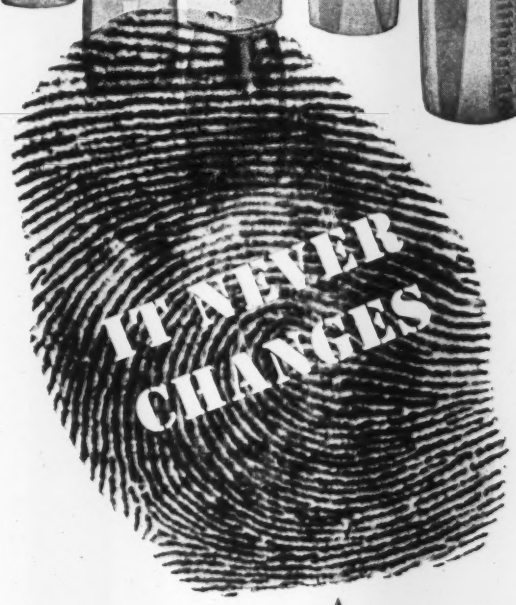

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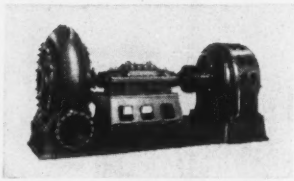
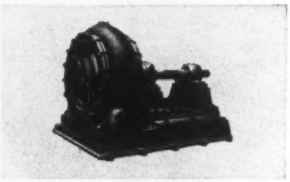
Amsco Pumps are designed from experience and engineered for your job.

▶These six basic types of Amsco Dredge Pumps—actually there are 40 different models—give a general idea of the complete line. The basic differences are in rated capacity, weight and construction of bearings, and in proportionate shaft sizes. Such modifications are made for economy...There is no dollar-wasting excess weight on the Amsco Pump engineered for your job. Water end parts are also available in ABK metal subject to our engineers approval.

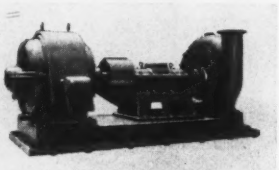
Amsco has a complete line of welding rods and electrodes to assure prolonged life and economical service of Amsco Dredge Pumps.



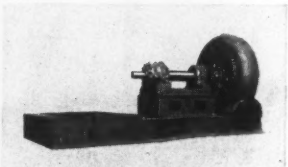
16-inch type XH—directly connected design; right hand bottom discharge. Can be fitted with "standard" or "counter-flow" water ends.



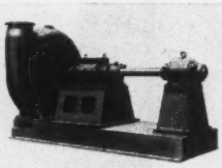
6-inch type SB-CF, form 24—antifriction bearing; stub base or belt driven; right hand bottom discharge.



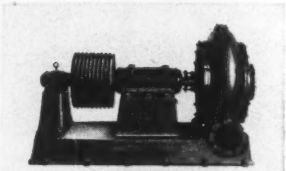
10-inch type M—left hand top discharge. Built in 6-, 8- and 10-inch sizes. Can be fitted with "standard" or "counter-flow" water ends.



20-inch type XHRB-CF—left hand bottom discharge; antifriction thrust and radial bearings.



12-inch type H-CF, form 40—right hand, top vertical discharge; belt driven. Combination two directional-type ball thrust bearing and sleeve-type radial bearings.



8-inch type C, form 30—belt driven; left hand bottom discharge; combination ball thrust and ring oiling sleeve main bearings. Available with "standard" or "counter-flow" water ends.

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READER COMMENT

Unfinished structural business

Sir: At a national meeting of engineers some time ago, a lengthy, informal discussion was held by a chance group of engineers about some features of structural design, materials, and fabricating practices which do not appear to be adequate, in view of the tendency towards reducing the size of joints and other members and increasing spans as more precise analyses are made of the stresses encountered in structural assemblies. It has occurred to me that some of the thoughts expressed might also be of interest and value to other engineers.

They are:

1. The compression flanges of long span, especially continuous, girders should have greater width or have more resistance built into them against lateral forces. Some bridges with this type of main members have been observed which had considerable undesirable side wobble or deflection during erection and even up to the time of the actual hardening of the concrete decks.

2. The compression joints in truss systems should be strengthened to resist considerable bending moment. The practice of butting compression chord components and relying mainly on the gusset plate or plates for continuity can produce a structure inherently weak in vertical and lateral shock or impact resistance, particularly during erection and possibly later in service.

Such joints should be re-examined, and consideration given to full splice plates over the top cover plates, some splice metal across the webs, plus ample splice metal carried across the bottom flanges of the chord members. In other words, the compression joints should have considerable moment resistance and continuity of component members, even if the existence of the gusset plates is entirely disregarded.

3. Specifications for welded gusset plates should call for a steel that will withstand bend tests, both in the direction of and at right angles to the direction of final rolling. In addition, plates for gussets in welded construction should be required to be free from internal defects which might let considerable areas of a plate separate when members are welded to opposite sides.

4. Under no circumstances should it be permissible to increase the size of or piece out a gusset plate by welding.

YE GOOD KING WENCESLAUS
by YE GOOD SAINT "VIC"

Sad King Wenceslaus looked out
At the royal piping,
Faulty lines lay all about
(Those leaks and breaks were griping!)
Then he saw with much delight
What was in his stocking,
He found Couplings sure leak-tight
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"Ah! Victaulic Fittings, too,"
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Zip! The King hooked up those sections,
Saint "Vic" did him rightly
With these very best connections
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Wenceslaus is liking
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One (1) 5′ x 12′ Pulsator Double Deck Scalping Screen

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Twelve (12) Telsmith-BG Conveyors 18″ to 42″ wide, 42′ to 200′ long

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Finished sizes are stockpiled over a reclaiming tunnel, then rinsed and delivered to bins for loading cars and trucks. Telsmith did all engineering, including detailed drawings, furnished all screens and conveyors and carefully co-ordinated all equipment for smooth, efficient operation. To relieve yourself of technical details and to be sure of satisfactory results, consult Telsmith without obligation. Send for Bulletin 266.

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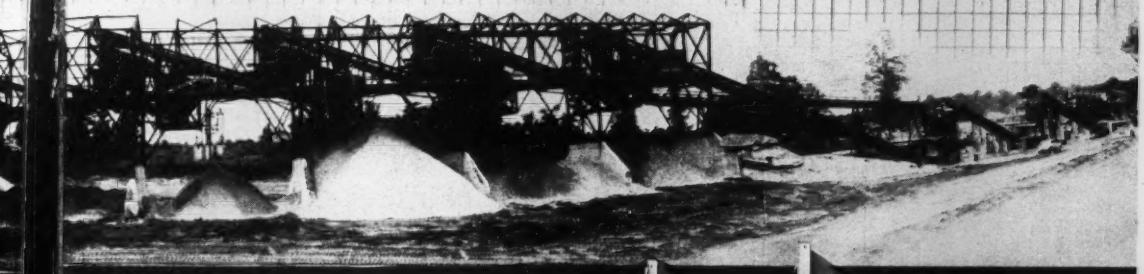

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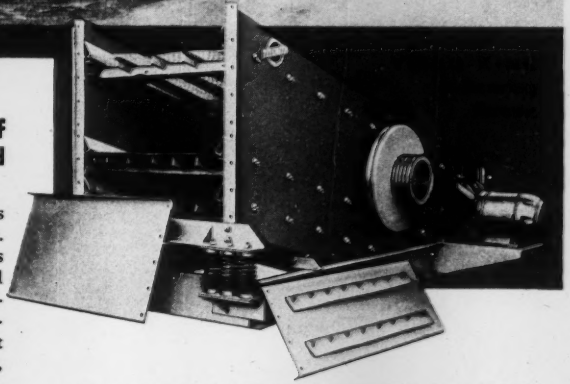
For Finished Screening of Medium and Small Sized Aggregate

With its two bearings, the Vibro-King is simpler, more efficient, and upkeep is lower. Telsmith-patented automatic counter-weights assure smooth starting and stopping as well as exceptionally smooth operation. Its circular screening movement is uniform everywhere on the screen cloth, and is constant under any load. Entire vibrating mechanism, including vibrating unit and screen cloth, floats on nests of springs. Welded and reinforced main frame is *horizontal* for rigidity and easy installation. Cable suspension, if desired. Five sizes, 1, 2, or 3 decks.



Changing Screen Cloth is Simple and Quick — The upper end of the Vibro-King is readily removable, making it a much easier job to change screen cloth and saving a great deal of time.

Screen Cloth Mounting—At customer's option — screen cloth may be mounted in rubber on steel screen trays; or stretched over steel screen supports—protected by rubber—on any deck or decks.

PULSATOR

For Heavy-Duty Scalping

A four-bearing, heavy-duty vibrator . . . for all kinds of screening, especially scalping, or large sized aggregate . . . Pulsator's circular movement gives uniform, efficient screening on all decks and under heaviest loads. The best alloy steels, the finest anti-friction bearings, protected by both labyrinth and piston ring seals, give longer life and lower upkeep. Eleven sizes, with 1, 2, or 3 decks.

PULSATOR
4-Bearing Screen

CS-12

Cable Address: Telsmith, Milwaukee

51 East 42nd St. New York 17, N. Y. — 211 W. Wacker Drive Chicago 6, Ill. — 713 Commercial Trust Bldg. Philadelphia 2, Pa. — 238 Main Street Cambridge 42, Mass. — Beutek Eqpt. Co. Milwaukee 2, Wis. — The McLean Co., 3525 Lakeside Ave. Cleveland 14, Ohio

Marens Eqpt. Co., 432 Main St., Rochester, Mich. • Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash. • Minet Eng. & Eqpt. Co., San Francisco 4, Calif.

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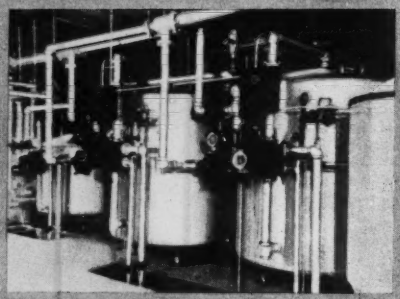
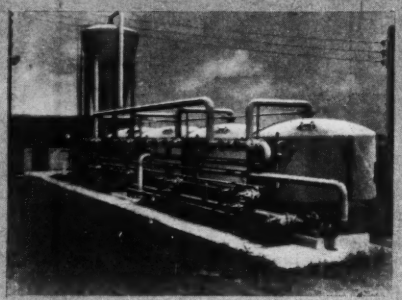
4 STEPS TO BETTER WATER

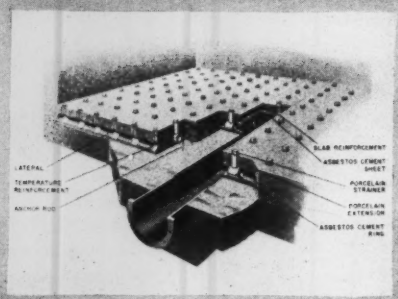
1. PERMUTIT PRECIPITATORS—For coagulation of turbid or colored waters and for softening hard waters. Uniform upward filtration through sludge blanket saves from 10% to 40% in chemicals . . . up to 50% in space and 75% in time. Available in horizontal or vertical designs, in single units or batteries, with unit capacities up to 10,000,000 gpd.



2. PERMUTIT ZEOLITE (Ion Exchanger) WATER SOFTENERS—Simplest method of removing hardness to any required degree. Completely automatic operation assures uninterrupted service and reduces operating costs. Supplied in single units or batteries to fit all requirements.



3. PERMUTIT® SPIRACTORS—New principle—*catalytic precipitation*—shortens detention time, eliminates sludge disposal, saves steel, floor space. No moving parts. Total reaction time is 8 minutes.



4. PERMUTIT MONOCRETE UNDERDRAINS—Rugged monolithic construction. Non-corrodible, easy to install. Large laterals and header assure uniform collection and distribution of water. Laterals are formed by specially designed inflatable rubber tubes which are removed after the concrete is set.

For full information on these and other types of water conditioning equipment, write to The Permutit Company, Dept. AC-7, 330 West 42nd Street, New York 36, N. Y., or The Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

PERMUTIT®

WATER CONDITIONING HEADQUARTERS FOR 40 YEARS

READER COMMENT

5. Rough riding, caused by slight dips on some steel beam or girder bridges, has been traced to excessive cantilever overhang. The cantilever portions of continuous spans should be examined for adequate depth and vertical stiffness. Where suspension hangers are introduced at contraflexure points, the overhang to such points on cantilevering should be kept on the short side.

The writer realizes that the points raised above could be the subject of endless debate or letter writing. He is not asking for either, but hopes that these items may be placed on the agenda of the proper committees of the technical societies which normally are concerned with such matters.

G. C. GREULICH
Consulting Engineer
Pittsburgh, Pa.

Delete privy data

Sir: In your article on the new system for home sewage disposal (ENR Oct. 30, p 39), it is regretted that the figures 6.2 and 30.9, appear in the column "Aeration Tank D.O.", Period III. These figures are not reliable and should not have appeared in the table. Materials accumulating in the effluent so interfered with the dissolved oxygen determination that it was impossible to obtain reliable information.

DON E. BLOODGOOD
Professor of Sanitary Engineering
Purdue University

CALENDAR

Society for Experimental Stress Analysis, Hotel McAlpin, New York City, Dec. 3-5.

American Association of State Highway Officials, annual meeting, Municipal Auditorium, Kansas City, Mo., Dec. 10-12.

Illinois traffic engineering conference, University of Illinois, Urbana, Dec. 11-12.

American Society of Photogrammetry, annual meeting, Shoreham Hotel, Washington, D. C., Jan. 14-16.

National Association of Home Builders, Conrad Hilton Hotel, Chicago, Ill., Jan. 18-22.

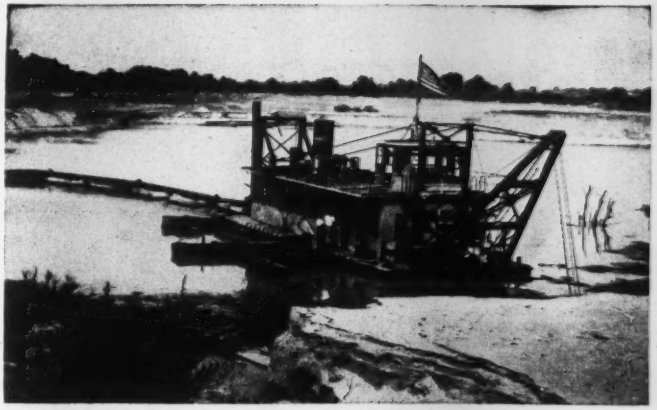
Mason Contractors Association of America, Sherman Hotel, Chicago, Ill., Feb. 1-4. California Street and Highway Conference, University of California, Berkeley, Feb. 4-6.

American Road Builders Association, Hotel Statler, Boston, Mass., Feb. 9-11.

Ohio Water Clinic, Ohio State University, Columbus, Feb. 19-20.

Illinois Confernce on Highway Engineering, Urbana, Feb. 24-26.

Industry conference on air pollution abatement, Hotel Statler, Detroit, Mich., Feb. 26-27.



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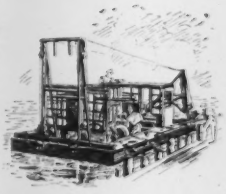
Ellicott carries through on delivery and assembly!



Perhaps your dredge can be built complete at Ellicott's yard and towed to its destination—or shipped by rail or water and then assembled by Ellicott or you. In any case, Ellicott engineers are there—at your site—when you need them. Ellicott assumes complete responsibility for performance!

Ellicott engineers are always at your service!

At any time while your dredge is in operation, an Ellicott engineer will visit your site . . . perhaps give suggestions for improving performance, or using the dredge for another job. In addition, you are invited *at any time* to request Ellicott to help with any problems you have.

Consult Ellicott on all your dredging problems!

Perhaps you already own dredging equipment that is not doing the job it should. Here, too, Ellicott will be glad to help you. Drop us a line, outlining your problem. And ask for complete, illustrated Catalog No. 825. Address: ELLICOTT MACHINE CORPORATION, 1603 Bush Street, Baltimore 30, Md.

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Main Street Merchant

The Golden Rule Store in Kemmerer, Wyoming, where J. C. Penney started his business in 1902. Now, fifty years and some 1624 stores later, comes Penney's beautiful new store, on Monument Circle, in Indianapolis.

J. C. Penney's Great, New Indianapolis Store Gives Concrete Expression to Principles which Built an Ideal into a Billion Dollar Business

● Clearly, J. C. Penney meant it when he called his first store The Golden Rule, for he and his associates have built that precept into a nation-wide institution, with 1624 stores and over a billion dollars annual volume. One of the newest in the Penney chain is this handsome Indianapolis store, on Monument Circle, the hub of the world's largest city not on navigable water.

The durable, fire-safe character of the building's concrete construction is as staunch as the business it houses. Hailed as a fine example of modern architecture, this new $6-million building, with 182,000 sq. ft. of total area on three floors, is windowless and completely air-conditioned. Counter and display arrangements also strike a new note in design.

Here is a structure well expressing the traditions of quality, value and friendly service which are distinguishing attributes of the business it houses, as indeed they are of the company which produced the 25,000 barrels of Lone Star Cement that went into this construction.

J. C. PENNEY COMPANY BUILDING, Indianapolis, Indiana
Built and owned by: **EQUITABLE LIFE ASSURANCE SOCIETY OF THE U. S.**
Architects:
SKIDMORE, OWINGS & MERRILL, New York, Chicago, San Francisco
Contractors:
Substructure: **CARL M. GEUPEL CONSTRUCTION CO.**, Indianapolis
Superstructure: **FRANK MESSER & SONS, INC.**, Cincinnati
Masonry: **LEON JOYCE**, Indianapolis
Cement requirements, all Lone Star:
Substructure: **READY MIXED CONCRETE CORPORATION**
Superstructure: **CARLSEN CONCRETE SUPPLY**
Wall and Partition Units: **CINDER BLOCK & MATERIAL CO.**
Masonry: **H. W. LINABURRY BRICK & TILE CO.**
—all of Indianapolis, Indiana

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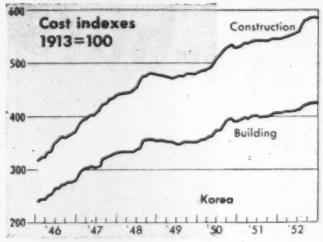
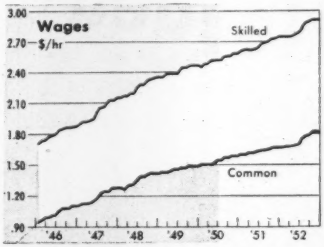
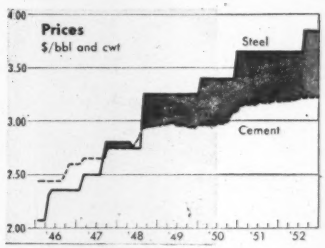
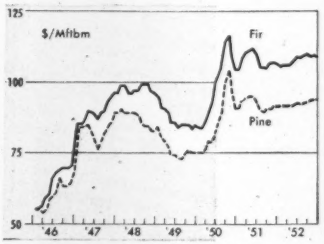
DECEMBER CONSTRUCTION SCOREBOARD









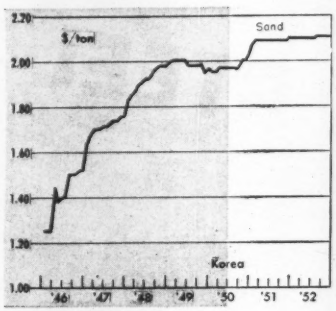
ENR INDEXES (1913 = 100), 20-cities' average	1952 December	% Change from last Month	% Change from last Year
Construction Cost	587.49	−0.2	+ 7.2
Building Cost	425.26	−0.2	+ 4.8
WAGE RATES, 20-cities' average			
Common	$1.817	0.0	+10.0
Skilled (aver. 3 trades)	2.942	+0.2	+ 6.8
Bricklayers	3.263	0.0	+ 6.1
Structural Ironworkers	2.863	0.0	+ 6.4
Carpenters	2.700	+0.5	+ 8.2
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.219	0.0	+ 1.6
Structural Steel, (3-mill aver.), per cw	3.850	0.0	+ 5.5
Sand, per ton	2.108	0.0	+ 6.3
Lumber, 2x4 Fir, per M. ft. bm.	107.722	−1.7	+ 0.9
Lumber, 2x4 Pine, per M. ft. bm.	93.033	−0.4	+ 1.4
Common brick, per M.	31.601	0.0	+ 1.6
Ready-mixed concrete, per c. y.	11.365	+0.5	+ 3.1
Structural Clay Tile, 3x12x12 per M	151.350	0.0	+ 1.1

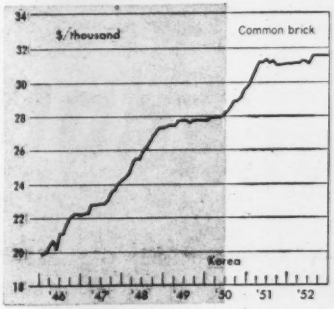
CONTRACTS AWARDED (Millions)	1952 Nov. 4-weeks#	11-Mos.	% Change from '51 Nov. 5-weeks#	11-Mos.
Total U. S. (ENR reported)	$1,079.9	$14,782.3	+31.7	+15.7
Private	664.0	6,582.4	+30.0	−5.0
Public	415.9	8,199.9	+34.5	+40.4
Federal	151.3	4,370.8	+85.9	+104.3
ENR Volume Index, '13 = 100	504	591	+24.7	+10.9
NEW CAPITAL (Millions)				
Total	333.9	14,649.5	−91.1	−6.9
State & Municipal Bond Sales*	185.0	2,759.2	−21.0	+20.4
Corporate Security Sales	134.4	3,419.6	−53.7	+ 6.4
Federal (non-federal work)	14.5	883.9	+87.2	+26.5
Federal (federal work)	———	7,586.8	−100	−20.4

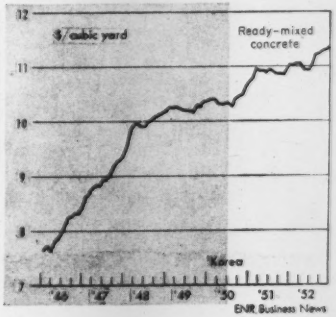
* Excluding public housing.
\# Computed on Weekly Average.

MATERIAL SHIPMENTS & LABOR SUPPLY (Millions)	1952 Sept. (8) Oct. (o)	9-Mos. (9) 10-Mos. (10)	% Change from '51 Mo.	Yr.-Cum.
Cement bbls, Bu. of Mines	26,243(S)	190,406(9)	+12.8	+2.7
Fabr. Struc. Steel, tons AISC	259(O)	2,211(10)	+7.9	−3.0
Lumber, mil. ft. bm., NLMA	3,450(S)	27,916(9)	+17.4	−2.2
Lumber Prod., mil. ft. bm., NLMA	3,464(S)	28,211(9)	+ 8.2	−3.7
Contract Constr. Employ., BLS	2,686(O)	2,548(10)†	−2.7	−0.7

† Average.







ENR Business News

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HI-BOND RE-BARS FOR GREATER GRIP

First of the new high-strength bars, Hi-Bond reinforcing gives stronger construction and increased resistance to the formation of tensile cracks. Every bar meets or exceeds ASTM spec. A. 305.

PRINCIPAL PRODUCTS IN STOCK

CARBON STEEL BARS—Hot rolled, cold finished.
STRUCTURALS—Channels, angles, beams, etc.
PLATES—Many types including Inland 4-Way Safety Plate.
SHEETS—Hot, cold rolled, many types—coatings.
TUBING—Seamless and welded, mechanical and boiler tubes.
ALLOYS—Hot rolled, cold finished, heat treated. Also tool steel.
STAINLESS—Allegheny bars, plates, sheets, tubes.
MACHINERY & TOOLS—For metal fabrication.

You can be sure the reinforcing materials you order from Ryerson will be ready on the job when you need them. Ryerson deliveries are timed to the job's progress, follow a dependable day-to-day schedule.

With the Hi-Bond type bars you order from Ryerson goes complete, time-saving Ryerson reinforcing service—setting plans, accurate cutting and bending, and every piece metal-tagged for quick identification and placement. And to speed up purchasing, you can include your other construction requirements with your re-bar order—spirals, wire mesh, joist forms—any other steel product.

Ryerson deliveries are flexible—can be stepped up should the job jump ahead of schedule, slowed down if materials begin to pile up on the site. So be sure of a fast start and completion on schedule. Next job, let us quote you our lump sum or average pound price.

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JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA
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• **Problem for defense**—One of the toughest problems for the new administration is already sitting squarely in the lap of Charles E. Wilson, incoming Defense Secretary:

The large-scale outpouring of defense contracts will slow down in the next 18 months—and with that slowdown comes the specter of slowing construction, possibly a business letdown. The new Secretary will have to fix the leveling off point, with an eye to business as well as military implications.

Just what the arms buildup has meant to business in general is easily apparent: Between World War II and Korea, Congress voted only $50 billion for the entire defense establishment, but it has had to vote another $160 billion since Korea, to rebuild the U. S. forces. The upcoming military budget (partly because the pace of letting contracts did not keep up with appropriations) will scale down to somewhere between $35 and $40 billion, (from $67 billion in fiscal 1952). There will be about $3 billion for military construction in that request, by the way.

• **Bridge play starts**—Armed finally with legal authority—and two-state backing—the Delaware River Port Authority is getting set to make big news for construction men, as well as industrialists and city planners.

Governors of both New Jersey and Pennsylvania have named the 12 members of the joint authority, Congress has approved the needed two-state pact, Army Engineers have OK'd the structure as no bar to navigation.

What is planned is a $90-million bridge between south Philadelphia and Gloucester, N. J., a $32.5-million expressway on the New Jersey side to feed the bridge. There is authorization for planning transit lines, tunnels, piers, and other bridges.

First move will be a $90-million authority bond issue, probably in January.

• **Work abroad**—If you are interested in work in foreign fields—it is a good idea to watch the North Atlantic Treaty Organization.

NATO is about to launch a new phase of its program to mass-produce air bases across Western Europe from Norway to Italy. To date, the program has reached the halfway mark, and the new phase, which might cost in the neighborhood of $400 million, will take it up to three-quarters.

What's on the fire: some 31 air bases, ranging in cost from $5.6 million to $11.5 million, each to have a standard 8,000-ft runway, a parallel landing strip, and fuel and ammunition storage facilities. Troop housing is a separate item.

• **St. Lawrence pressure**—The pressure is building up around that hearing set for Dec. 7, by the Federal Power Commission, on New York state's application to join Ontario in building the St. Lawrence Seaway.

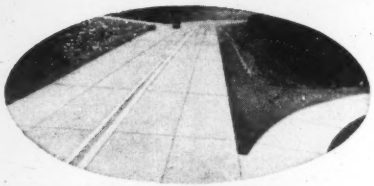
The New York State Power Authority got some unexpected—and powerful—support when the Great Lakes-St. Lawrence Association (composed of state and municipal governments and private organizations and citizens) reversed its previous opposition, urged FPC to let New York go ahead with the job. And at the same time, R. B. McWhorter, U. S. member of the International Joint Commission had some economic cautions: (1) Canada shouldn't build and regulate the seaway alone, thus setting tolls for U. S. shipping which will predominate; (2) Power sales shouldn't carry so heavy a share of the costs—and the way IJC approved plans makes no provision for apportioning costs of navigation-power installations.

• **Which economy d'ya read?**—Construction as a key to U. S. economic health gets some careful study and some startling conclusions—from economists Miles Colean and Robinson Newcomb in a new book "Stabilizing Construction: The Record and Potential."

Say Colean and Newcomb: Construction isn't subject to 18-20 year cycles of depression-triggering declines; public works can't be counted on to halt depressions unless aided by long-term planning, budgeting and cooperation.

Better Concrete

from superhighways to sidewalks is made with DURAPLASTIC*

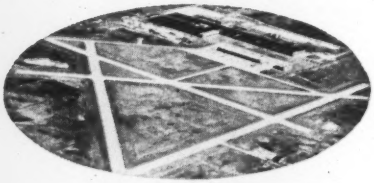


Penn-Lincoln Parkway,
Allegheny Co., Pennsylvania.
Placed in 1947.

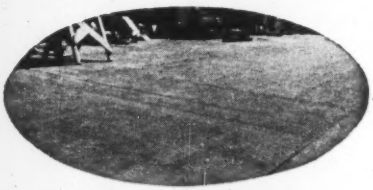
YOUR NEXT PAVING JOB can prove it! Thousands of contractors, on jobs both large and small, have found that they can get better concrete with Atlas Duraplastic, the *original* air-entraining portland cement.

Because the use of Duraplastic cement minimizes bleeding and segregation, the finished concrete is fortified against the effects of freezing-thawing weather and the scaling caused by de-icing salts.

Moreover, Duraplastic is *easy* to use—no additives, no unusual changes in procedure. Duraplastic requires less mixing water for a given slump. The mix is more workable, more uniform. It dumps, spreads, finishes easily . . . permits finishing closer to the paver and earlier protection for curing.



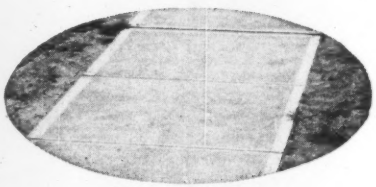
O'Hare Field,
Park Ridge, Illinois.
Placed in 1942.



Plant paving, U. S. Rubber Co.,
Eau Claire, Wisconsin.
Placed in 1944.

YET DURAPLASTIC COSTS NO MORE

All these advantages are yours *simply by specifying Duraplastic.* It sells at the same price as regular cement; complies with both ASTM and Federal Specifications. For more information, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.



Sidewalk,
Babylon, Long Island.
Placed in 1944.

*"*Duraplastic*" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.*

ENR-D-148

ATLAS® **DURAPLASTIC**
AIR-ENTRAINING PORTLAND CEMENT

Makes Better Concrete at No Extra Cost

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

U.S. agencies see $32 billion building in '53

Predictions of a boom year for construction in 1953, made (ENR Oct. 9, p. 21) in a survey of experts have been backed by the Departments of Commerce and Labor. A survey, released over the weekend, estimates that construction next year will total $32.333 billion—which is $333 million over the earlier estimate.

The Commerce and Labor Departments make this qualification: The outlook is based on the assumption that business will remain good, helped out by increasing defense expenditures in the first part of the year, at least.

Private construction is expected to total $22.2 billion, compared with a $20-5-billion estimate made in ENR in October. As the accompanying table shows, the biggest increases in private construction are in warehouses, office and loft buildings, and stores, restaurants and garages. The estimates:

- Warehouses, office and loft buildings, up from $479 million to $575 million, up 20%.
- Stores, restaurants and garages, up from $622 million to $825 million, up 33%.

These increases offset an expected decrease in industrial construction of 28%, or $2.2 billion down to $1.6 billion. In October, ENR reported industrial construction would fall from $2.3 billion this year to $1.9 billion in 1953.

Among predicted increases in private building were: public utilities, up 11% (see table); educational, up 6%; residential, up 4%.

In public works, every category shows an increase in 1953 over 1952 public and defense housing, hospital, military and naval construction, highways, sewers and waterworks. The biggest increase in public building will come in hospitals and institutionals, up 11% and military construction, up 18%.

The Commerce-Labor survey estimates that housing next year will beat the one-million mark, with expenditures totaling over $10 billion.

Outlays for military and naval facilities will probably go up one-fifth to a total of around $1.6 billion. This building will be substantially completed during 1953.

Commercial building will go up one-fourth, continuing the brisk activity it has experienced since materials restrictions were eased, and since the removal of credit controls.

Estimated new construction activity

1952–1953

(Millions of Dollars)

	1952*	1953	Percent change
Total New Construction	32,318	33,500	+4
Private total	21,681	22,200	+2
Residential (excluding farm)	11,029	11,450	+4
New dwelling units	9,820	10,200	+4
Additions and alterations	1,026	1,050	+2
Nonhousekeeping	183	200	+9
Nonresidential building	4,945	4,600	−7
Industrial	2,289	1,650	−28
Warehouses, office and loft buildings	479	575	+20
Stores, restaurants and garages	622	825	+33
Other nonresidential building	1,555	1,550	†
Religious	397	425	+7
Educational	354	375	+6
Hospital and institutional	388	350	−10
Social and recreational	125	150	+20
Miscellaneous	291	250	−14
Farm construction	1,700	1,700	0
Public utility	3,925	4,350	+11
Railroad	400	425	+6
Telephone and telegraph	550	575	+5
Other public utility	2,975	3,350	+13
All other private	82	100	+22
Public total	10,637	11,300	+6
Residential	643	575	+11
Nonresidential building	4,104	4,250	+4
Industrial	1,649	1,700	+3
Educational	1,618	1,775	+10
Hospital and institutional	478	375	+22
Other nonresidential building	359	400	+11
Military and naval	1,355	1,600	+18
Highway	2,740	3,000	+9
Sewer and water	686	725	+6
Miscellaneous public service enterprises	202	200	+1
Conservation and development	843	875	+4
All other public	64	75	+17

* Ten months actual; November and December estimated.
† Decrease less than 0.5%.

AFL plumbers' leaders take key posts

Plumbing union leaders took the spotlight in the labor scene this week and last.

Martin P. Durkin, 58-year-old president of the AFL Plumbers and Pipefitters, was named Secretary of Labor. George Meany, also a former plumber and once president of the New York City local, moved into presidency of the AFL (see page 29).

Durkin was a surprise choice. A registered Democrat, he did not support President-elect Eisenhower in the cent campaign. Durkin sees a "good possibility" for a union of the AFL and CIO, and "will be glad to do everything in my power" to bring about unity between the two labor organizations.

A rotund, curly-haired Irishman, Durkin is described by friends as calm, judicious and soft-spoken. Chicago-born, he started his career as a steamfitter's apprentice in 1911. By 1941, he was secretary-treasurer of the plumbers' union. Durkin is a vice president of the Catholic Conference on Industrial Problems and a director of the Union Labor Life Insurance Co., of New York City.

Atomic energy may spark new boom in construction

- **Petrochemicals pace chemical expansions**
- **Pipeline projects spurt to new records**

Since the end of World War II, speculation on when industry will be able to use atomic energy for commercial purposes has run high. As atomic war weapons—from H-bombs and A-bombs through atomic reactors for propulsion of submarines, aircraft and surface vessels—have developed at an astonishing pace under the Atomic Energy Commission, the day when atomic energy also will be entrusted to competitive private enterprise has drawn steadily closer.

Last week T. Keith Glennan, president of Case Institute of Technology and former member of the AEC, indicated that day may arrive soon—and with it a new boom for construction.

Speaking before the Manufacturing Chemists' Association in New York, he called attention to the commission's decision to permit eight private concerns to come into the program to study the feasibility of producing atomic power in privately owned plants. Several additional companies began to make similar studies this year.

At first their questions were not too difficult, Glennan said. They wanted to know about materials, construction costs, and operations, today their questions are getting harder:

"If we put up some of our own money, what rights can we expect in return? Can we own atomic energy facilities? Can we locate those facilities wherever economic factors dictate? Can we own patents on things we develop at our own expense? Will we have access to nuclear fuel needed if we build a reactor for power?"

"Instead of technical questions, they are now primarily questions which any prudent investor might ask," Glennan said. He added:

Industry built the atomic energy program and is operating it under the AEC. The time has arrived for it to work out a program for development and use of the peaceful applications of atomic energy under competitive enterprise. To expedite this move, he suggests setting up an association of interested industrial concerns to work with the AEC toward that goal.

Said Glennan: In atomic energy, there is untold promise for the future—in power, in propulsion, in the use of nuclear radiation in a thousand ways which have not even been dreamed of as yet.

T. KEITH GLENNAN foresees early developments in atomic energy.

"Let's make our play, put in some chips and hasten the realization of some of this promise. Let's bring atomic energy out into the main stream of the economic life of America," he concluded.

• **The outlook**—For construction men the outlook is an encouraging one. Releasing atomic energy to private industry will mean piling up new backlogs, primarily on the already huge volume of power and chemical construction that lies ahead.

And some idea of what the addition of atom-power projects will mean to the construction picture is easily apparent from a look at these sample figures.

Expansion of power and light facilities is the biggest single program that has been fostered under fast tax-amortization, and involves a cost of $3.1 billion. Next year expenditures for power equipment are expected to climb another 15% over this year to a total of $468 million. The chemical industry is in the middle of an expansion program requiring $6 billion in new facilities between 1951 and 1955.

• Chemicals outlook bright

Whatever influence atomic energy development may have on chemical expansion in the future, today the industry is feeling its biggest impact from the development of petrochemistry.

The size of this impact was indicated last week in a report by William H. Ward, who is chairman of the Manufacturing Chemists' Association.

Analyzing $2.3-billion fast tax amortization certificates for 789 chemical expansion projects granted by the Defense Production Administration through Oct. 15, covering nearly 70% of the new projects, Ward came up with this trend:

Availability of oil and natural gas in the West-South-Central region has attracted new chemical projects which received certificates totaling $706 million.

This is nearly twice the $373 million granted for projects in the East-North-Central region.

Other certificates were issued for: $300 million in the south Atlantic region; $297 million in the Middle Atlantic; $200 million in the east-south-central; $137 million in the Pacific area; $103 million in the west-north-central; $74 million in the mountain region; $31 million in New England.

Texas and Louisiana are leading the individual states with expansions respectively of $435 million and $202 million.

In 1940, there was an estimated capital investment of $350 million in petrochemical plants. By 1945, this had grown to $1.2 billion. Today, investment is over $2 billion, and is still soaring. About 25% of the chemicals now being made are petrochemicals—materials derived from petroleum and natural gas—and by 1960 the proportion is expected to climb about 50%.

• **Looking ahead**—Among the petrochemical plants still in the future are: an American Cyanamid Co. plant in Jefferson Parish, La., under construction by Chemical Construction Corp. and J. A. Jones Construction Co.; a plant planned by Carbide & Carbon Chemicals Div. at Texas City, Texas; a plant at Pointe a la Hache, La., planned by Delta Chemical Co.; a plant planned by Lion Oil Co. to be constructed at Luling, La.; a plant for Phillips Chemical Co., nearing completion at Pasadena, Tex., being built by Chemical Construction Co.; a plant under construction for Monsanto Chemical Co. at Texas City, Tex.; a plant planned by Sid Richardson Gasoline Co., at Pointe a la Hache, La.; and a plant planned by Spencer Chemical Co. at Vicksburg, Miss.; a plant for Humble Oil & Refining Co. at Baytown, Tex., under construction by C. F. Braun Construction Co.

CONSTRUCTION of installations such as this one for Cities Service at Lake Charles, La. will continue high.

In addition there are nine sulfur-conversion plants under construction and two more in the planning stage; 12 new natural gasoline plants being built and 12 in the planning stage.

Expansion of crude-oil refinery facilities is slated to continue high next year, although at a less rapid rate than during the present year. Total refinery capacity for the present and the next two years is estimated at: 1951—6.9 million bbl per day; 1952—7.3 million bbl per day; 1953—7.5 million bbl per day; 1954—8 million bbl per day. Oil men use the rule-of-thumb estimate that each barrel per day expansion means an outlay of $1,500 for refinery construction.

• Pipelines forge ahead

Feeding the huge expansions in petrochemical plants and refineries, and pushing through to new consumer markets, is a vast network of pipelines. Construction of pipelines for transport of oil, oil products, and natural gas is slated to hit a peak next year, exceeding the present record-breaking year.

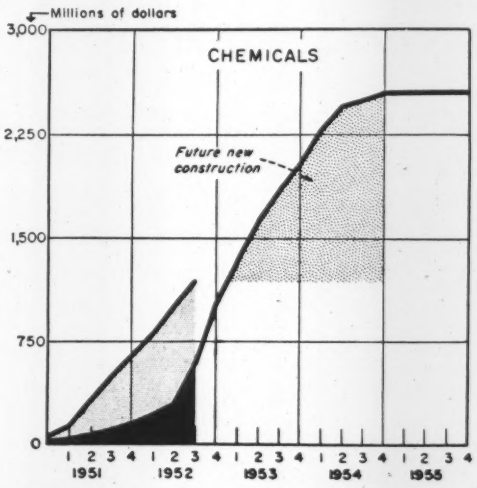
Petroleum Administration for Defense, materials claimant agency for the pipelines, is requesting allotment of 647,000 tons of steel for large pipe during the second quarter of next year. This is by far the largest amount ever requested by PAD.

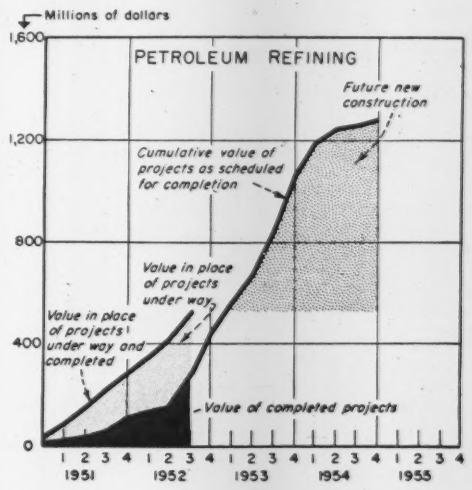
It compares with allotments of 348,000 tons for the first quarter of next year and 387,000 tons for the present quarter. Because of lack of steel, pipeline manufacturers are now turning out only 400,000 tons of large piping—16 in. diameter and above— per quarter.

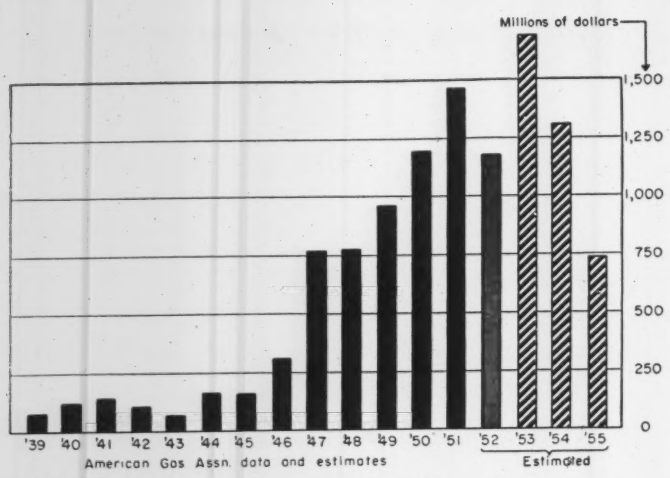
During the first quarter of next year, natural gas producers and pipelines will initiate construction on three projects costing nearly $40 million. They are:

• Two new underground gas storage reservoirs to be constructed in West Virginia by United Fuel Gas Co. at a cost of $8.1 million. The project is scheduled for completion by end of next year.

• Looping of a section of the 34-in.







GAS UTILITY and pipeline construction continues high.

pipeline in California to bring additional Texas gas to California. This $16.8-million project is being undertaken by Pacific Gas and Electric Co. and completion is set for the second and third quarters of next year.

• Additional transmission lines to be built by the Texas Co. to serve two industrial customers in Louisiana at a cost of $3.9 million. These are to be completed by the third quarter of next year.

• **More coming**—PAD also is extending priorities assistance to five other natural gas pipeline projects already underway.

Projects, firms involved, cost and date of completion are:

• Looping of existing Texas-California system; El Paso Natural Gas Co.; $63.7 million; slated for the second quarter of 1953.

• Looping and extension of existing system; Southern Natural Gas Co.; $77.7 million; 1954.

• Additional compressor-station horsepower and lateral transmission line; Texas-Illinois Natural Gas Pipeline Co.; $21.9 million; third quarter of 1953.

• Looping of existing Texas-New England system; Tennessee Gas Transmission Co.; $133.7 million; fourth quarter of 1953.

Total cost of these projects is $323 million, and pipe alloted for the first quarter of next year totals 140,000 tons.

In addition, PAD has allocated tons. In addition, PAD has allocated projects, including gathering lines, distribution lines and other facilities. This allotment includes the pipe needed for maintenance, repair and operation of natural gas systems.

Already completed this year, are more than 1,600 miles of lines; projects now underway will reach 2,500 when completed. The size of the job ahead can be measured by the 17,740 miles of new lines which are still in the planning stage.

• **More oil and products lines**—While expansion of natural gas lines has provided the most spectacular phase of new pipeline construction, the trend toward more pipelines for transport of crude oil to refineries and oil products to consumer markets is growing at a rapid pace.

Last week, as DPA was preparing to announce first quarter allotments of pipe to crude-oil and oil-product pipelines, it estimated that the cost of projects of the type now underway is more than $390-million. Crude oil lines now under construction will total 2,150 miles when completed, and products lines will reach a total of 2,330 miles.

Looking ahead, crude oil projects in the planning stage call for another 3,600 miles of pipeline, and products lines being planned will stretch for 4,550 miles. Pipelines, already are vying with water carriers and railroads in volume transported, are continuing to gain as the demand for petroleum products climbs from its 1951 average as the demand for petroleum products climbs from its 1951 average of 7.5 billion bbl per day to an expected 8.4 billion by 1955.

Typical of the crude-oil line expansions are: the 1,075-mile 16- to 20-in. line underway from Worland, Wyo., to Wood River, Ill., for Platte Pipeline Co., and the 674-mi 20- to 24-in. pipeline under construction from Drumright, Okla., to E. Chicago, Ind., for Sinclair Pipeline Co.

Typical of what's ahead: a proposed 900-mi 24-in. pipeline from the Permian Basin in west Texas to California for Progress Pacific Pipeline Co.; the planned 986-mi 20- to 22-in. pipeline from Snyder, Tex., to Norwalk, Calif., for West Coast Pipeline Co.

Largest domestic product pipeline planned is a 1,000-mi project for United States Pipeline Co. from the Gulf Coast via Memphis and Nashville, Tenn., Lexington and Paducah, Ky., to Cincinnati, Ohio.

Stronger central control urged in Maryland building

Maryland's system for construction of state buildings is about to get an overhauling.

A new report from the state's "Little Hoover Commission" proposes changes designed to cut red-tape, aid planning, speed construction, provide better supervision, and reduce costs.

In the center of the proposed changes expected to go before the next session of the legislature, is the Department of Public Improvements, main construction agency for all state departments. Said the report: Its functions should be strengthened.

In addition to its present job of making preliminary estimates, DPI should render site-planning services, the report says.

• No project should be included in the state's capital improvement program, until the DPI has completed a thorough study of probable cost. This would reduce occasions where the state takes on construction of new buildings, but the money appropriated is "grossly inadequate."

• DPI, along with the Department of Budget and the State Planning Commission, should work more closely together, and with other department heads in the planning, financing and engineering aspects of the capital improvements program—assigning teams to various phases of it.

• DPI should have final authority to approve change orders not exceeding more than 10% of the amount of the contract—relieving the Board of Public Works of this responsibility.

• DPI should make an effort to keep building costs within approved amounts, if necessary revising plans and specifications to do so. Revisions

also should be approved by the using agency.

• Under DPI supervision, inspection of construction in progress by the architect or engineer should be strengthened by employment of a "clerk-of-the-works," and the architect or engineer should be compensated for this service in addition to his fee.

• DPI should have centralized responsibility for periodic investigation and reporting on the condition of state-owned public works, and should function as a service agency for the departments in the planning and execution of maintenance work.

Also recommended were changes in financial procedure which apply primarily to the Department of Budget and Procurement.

The report was submited by Simon E. Sobeloff, chairman of the Commission on Administrative Organization of the state. It was prepared for the commission by a committee headed by Dr. Abel Wolman, consulting engineer and professor at Johns Hopkins University.

• **Other reports**—The commission also proposes changes in highway administration and in health and welfare administration which affect construction.

A report on highway relationships calls for legislation to encourage cooperation between state and local officials in developing the highway program.

It would clearly define the authority and responsibility within the State Roads Commission and local roads organizations.

Among the recommendations were these:

• Within the State Roads Commission, responsibility for state-local highway activities should be consolidated in a single staff unit.

• Local standards should be developed for road construction and maintenance, and for state and local road classification.

• Ultimately all county road operations should be treated as a local responsibility.

A study on health and welfare administration produced a recommendation calling for the elimination of conflict and overlapping in control of water purity by doing away with the Water Pollution Control Commission and assigning its functions to the State Department of Health.

The recommendations were submitted to Gov. Theodore McKeldin, to the Legislative Council of Maryland, and to the General Assembly. Legislation to put them into effect is now being studied.

Ohio Turnpike paving costs challenged at hearings on asphalt vs. concrete

Hearings in a suit to require the Ohio Turnpike Commission to take bids on both concrete and asphalt paving for the Ohio Turnpike (ENR Nov. 27, p. 24) were continued in Columbus the last two weeks.

Testimony was centered chiefly on efforts by lawyers for asphalt-paving interests in Ohio to show that estimates of the cost of bituminous paving used by the J. E. Greiner Co., consulting engineers for the commission, were unrealistic; also that comparative cost figures submitted to the commission by the Greiner Co. did not cover all the costs going into the two types of pavement.

Principal witnesses were Bernard E. Gray, president of the Asphalt Institute; Charles F. Parker, chief engineer of W. H. Hinman, Inc., general contractors of Maine, and formerly with the Maine Highway Department; W. LeSeur of the J. E. Greiner Co., and J. K. Knoerle, a former employee of the Greiner Co.

Mr. Gray testified that as long ago as May of this year he had advised H. H. Allen of the Greiner Co. that responsible contractors estimated that asphalt paving as specified in the comparative designs set up for the turnpike by the Greiner Co. could be built for $1 less per square yard than the specified concrete pavement.

• **Other arguments**—Mr. Parker's and Mr. Knoerle's testimony related chiefly to soils on which the pavement is to be laid as affected by frost. It was in support of the claim of the companies bringing suit against the turnpike commission that for a true comparison of costs it would be necessary to include the cost of removing a layer of all soils weakened by frost, action from below the concrete pavement.

This would not be necessary in the case of the bituminous pavement, it was stated, because that pavement is specified to be 28 in. thick, or deep enough to be below frost action in Ohio. That would not be true of concrete pavement, the witnesses stated, which with its base would be only 16 in. deep.

Mr. Knoerle estimated that concrete pavement built according to the Greiner designs would cost $59,900,000 as against $52,934,000 in the Greiner estimate of August 4, 1951, and that bituminous pavement would cost $53,400,000 as against the Greiner figure of $55,738,000, or a saving of $6,500,000 through the use of bituminous paving. Mr. Knoerle said he could find nothing in the Greiner estimates to indicate that the contingency of having to replace unsuitable soil under the concrete pavement had been considered.

Other testimony at the hearings related to the comparative costs of maintaining rigid and flexible types of pavement. The Greiner estimates had placed the total cost of maintaining a flexible pavement on the turnpike at $14,228,000 over a 35-year period, and the cost of maintaining a rigid pavement for a like period at $11,956,000.

Algonquin lacks ok to use new pipeline

Algonquin Gas Transmission Co. is out on the end of a limb with a $50-million investment in its New England pipeline system.

The trouble is that Algonquin has most of its system built, but lacks a valid federal certificate to put it into operation. To point up the situation further, Federal Power Commission ruled in a three-to-two decision last week that it has no authority to grant Algonquin a temporary certificate to serve the New England markets.

There may be a resort to the courts on that decision, but thus far they have decided against the Algonquin plan. The only other alternative left to Algonquin is to continue its fight for a permanent certificate before FPC. That it was doing this week at hearings which almost certainly will continue well into December.

FPC gas experts know of no previous case in which $50 million of investment was in the balance.

• **The challenge**—Northeastern Gas Transmission Co., which already has a certificate for about half New England, is putting up a stiff battle for the share claimed by Algonquin.

Northeastern is serving most of the customers assigned to it under a certificate issued by FPC in 1950. These are in Massachusetts, Connecticut and New Hampshire.

The disputed markets, which Algonquin says it could serve within a month if allowed to proceed with present construction, are in Massachusetts, Connecticut and Rhode Island.

Algonquin told FPC it already has spent some $46 million on pipeline construction and probably several million more has been obligated. A large portion of this expenditure would be lost if Algonquin fails to get the certificate.

Report ok's $82-million crossing of Puget Sound west of Seattle

Early construction of an $82-million crossing over Puget Sound was recommended to the Washington State Toll Bridge Authority in a report submitted last week. Authors of the report—consulting engineers Ralph Smillie of New York, John L. Parcel of St. Louis, and Ralph Tudor of San Francisco—confirmed the need for the crossing, concluded that it would be structurally sound and that revenue bond financing would be feasible.

After studying four alternate routes, the board endorsed adoption of the southernmost (Route I). This would provide a floating bridge between the south city limits of Seattle and Vashon Island and a high-level suspension bridge from there to the Kitsap Peninsula. Construction of the crossing would mark the first time a floating bridge of this magnitude would span a tidal channel. Plans are patterned after the successful Lake Washington crossing east of Seattle.

The two-mile-long floating bridge would consist of a series of multi-cell concrete pontoons, each having outside dimensions of 405x65x14 ft. The 48-ft wide, four-lane roadway would be elevated above the pontoons 15 ft to raise it 20 ft above water level and prevent wave action interference with traffic.

The units would be anchored in alignment but free to rise and fall with the tide. Bridging between fixed approaches and the floating highway would be 280-ft-long truss spans with one end supported on a floating pier. Vessels up to medium draft will be able to pass under the approach trusses.

• **Other plans**—Heavy ocean-going ships would have to use Colvos Passage for access to Tacoma to the south. This seaway will be spanned by a 50-ft-wide suspension bridge with a 3,400-ft main span and 1,250-ft side spans. Tower piers will be in 165-ft water depths, necessitating 200-ft deep caisson-type foundations.

A second two-lane-wide, main span suspension bridge would link the Kitsap Peninsula with Bainbridge Island.

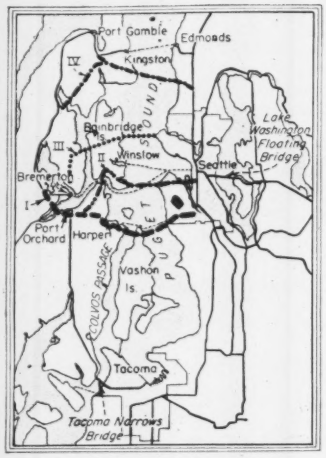
The board based its selection on several considerations, including these:

• The selected route will attract the highest traffic volume.

• It is the only one giving access to Vashon Island.

• It offers least navigational interference.

• It involves the least structural uncertainty.



FOUR PUGET SOUND CROSSINGS were studied to determine the most feasible route for vehicular traffic. Consulting engineers favored Route I—a floating bridge-suspension bridge combination.

• It is the least expensive crossing that would provide reasonable good traffic service (Route IV is actually cheapest but traffic volume over it is questionable).

• It will present the least interference with Seattle's internal traffic.

• Water depth is less.

The board said that to insure financing, all ferry routes in the general vicinity of the crossing must be abandoned on completion of the bridge.

Also considered was a floating-tunnel-type crossing. This was rejected because of coast hazard and construction difficulties.

The report was based on studies of plans and foundation explorations. Cost estimates and traffic surveys were made by the toll bridge authority staff under the direction of C. E. Andrew.

The authority approved the report of the consulting engineers and will ask the 1953 state legislature, convening in January, for $770,000 to cover the expense of preparing detailed plans and other information.

Some opposition is expected from Tacoma interests as the crossing will reduce traffic across the Tacoma Narrows Bridge by an estimated 20% and cause some interference with waterborne traffic. This won't affect the financial success of the Narrows Bridge as traffic is far in excess of pre-construction estimates. But it may take business from the city. If the legislature provides funds, construction could begin in two years and be completed perhaps as early as 1958.

• Other planning active

Progress on plans for two new crossings over San Francisco Bay, a toll-financed tunnel under Loveland Pass in Colorado, and a new parkway along the Niagara River—highlighted other transportation developments across the country last week.

• **New crossings**—The Bay Area Council in San Francisco threw its weight behind Mayor Elmer E. Robinson's revival of plans to build two new bay crossings simultaneously.

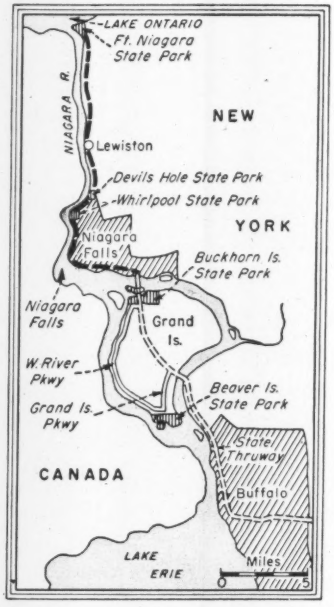
Under consideration: (1) A $170-million bridge from north of Market St. to Yerba Buena Island to Oakland, (2) an $80-million crossing from south of Hunters Point to Alameda County, (3) a $170-million bridge paralleling the present San Francisco-Oakland Bay Bridge, (4) a $200-million crossing from Army St. to Alameda.

The council said $250 million—the limit on financing new projects—could be raised by:

• Increasing tolls on the San Francisco-Oakland Bay Bridge.

• Increasing the tolls suggested for the new crossings.

• A proposed $50-million increase in bonded indebtedness of the San Francisco-Oakland Bay Bridge now



waiting State Supreme Court decision.

• **Toll tunnel**—Colorado's State Highway Commission has before it a recommendation by the state legislative long-range highway planning commission for construction of an all-weather toll highway with a tunnel under 12,000-ft Loveland Pass crossing the Continental Divide.

The tunnel would be 5,400 ft long, with its roadbed 710 ft below the summit of the pass. It would by-pass four and one-half miles of the pass. The committee's report said a 32-ft wide bore could be drilled under the pass on U.S. Route 6 at a cost of $7 million. Two one-way tunnels, each 18 ft wide, would cost only about $6.5 million.

The tunnel or tunnels would follow the line of a pioneer bore drilled by the State Highway Department several years ago. Tolls of 75 cents for passenger cars and light trucks and $2 for medium and heavy trucks were recommended to amortize revenue bond issues.

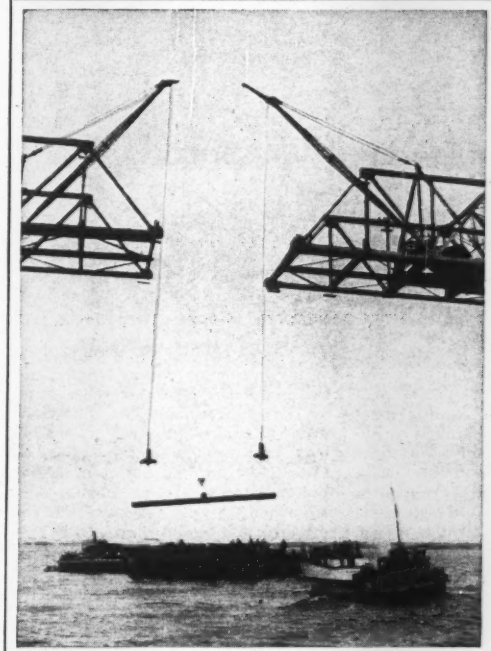
• **Niagara parkway**—The Niagara Frontier Park Commission has announced a $64-million plan for developing park and parkway facilities along the Niagara River. Major project of the plan is a $42-million divided highway along the Niagara River (see map). It will join Grand Island's West River Parkway, Grand Island Parkway, and the New York State Thruway. Plans for financing the program are expected to be submitted to the next session of the legislature.

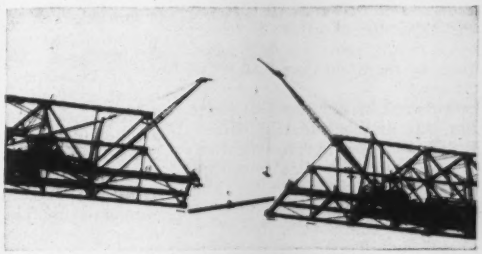
Florida bridge near completion

Jacksonville, Fla., city officials are busy making plans to dedicate the $12.5-million John E. Mathews Bridge on Dec. 27. The 7,375-ft-long bridge, key structure in the Jacksonville expressway system, will carry four lanes of traffic.

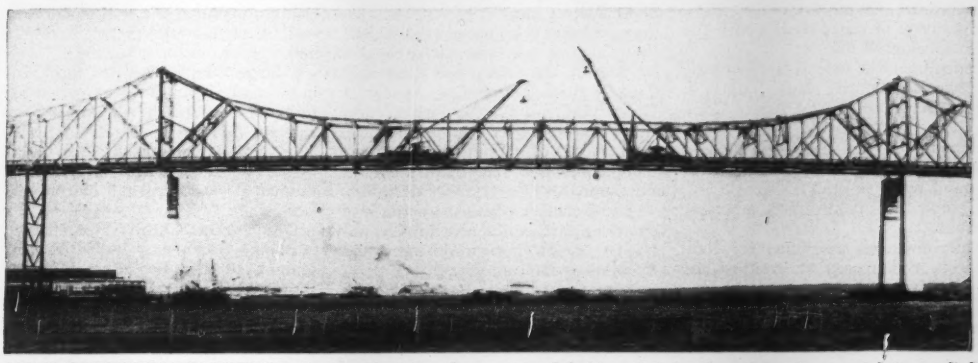
The east side approach to the main span is 3,447 ft long, including three truss spans totaling 986 ft. The west approach is 2,306 ft long. The main span over the terminal channel consisting of two anchor spans each 406 ft long and a central span 810 ft long, measures 1,622 ft in overall length. Crown of the roadway is 161 ft above St. John's River at mean sea level.

Steel erection by Bethlehem Steel Co. was completed late last month (see accompanying photos). Most of the substructure was constructed by Merritt-Chapman & Scott Corp.





THE 67-FT CLOSING CHORD MEMBER rises from a barge . . . to join two cantilevered arms of the main span.



STEEL ERECTION COMPLETED, flooring of reinforced concrete and decking of steel grid on the main span, is being readied for the bridge dedication Dec. 27.

ASCE section offers Texas water policy

When in 1951 T. C. Forrest, Jr. (see also p. 64) assumed the presidency of the Texas section, American Society of Civil Engineers, he led the section into assuming some responsibility for one of the state's knottiest engineering problems: water resources.

And recently, Gov. Allan Shivers received his copy of a summarized statement intended as a guide in engineering concepts of a sound water policy. A year of research by a five-man committee from the local ASCE section had produced the document, called "A water policy for Texans."

• **Recommendations**—Noting the importance of water to Texas and the present troubles with drought, the report stresses need for:

• A complete new surface water code, or at least separate acts to remedy present ills.

• Statewide regulation of groundwater supplies.

• Legislation to centralize pollution abatement in an agency with authority and funds.

• Provision of authority and funds for the existing State Board of Water Engineers, administrative group.

• Reestablishment of the principle of state ownership of waters so that proposed federal uses of water will require approval of the governor after public hearings by the State Board of Water Engineers.

• Amendment of the National Reclamation Act so that the U.S. Bureau of Reclamation can operate effectively in Texas (on other than municipal supply problems).

• Cooperation of the state (even to the extent of contributing funds) toward inclusion of conservation benefits in Corps of Engineers projects.

• State approval before any Dept. of Agriculture reservoirs are built.

• Expansion of water studies with the U.S. Geological Survey.

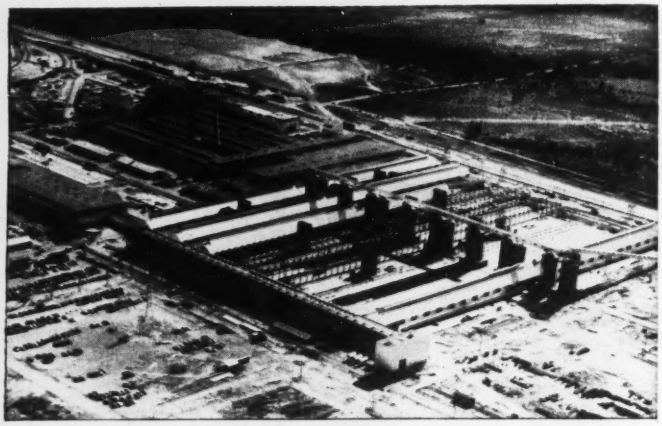
• Amendment of federal law requiring a 50-year recapture clause under licenses from the Federal Power Commission.

• Support of the Engineers joining council's recommended principles of a sound water policy.

• Compacts for control over interstate streams.

• State financial assistance for local projects as a means of avoiding use of federal money.

The Texas section's Committee on State Water Policy, making these recommendations, was: Simon W. Freeze, James A. Cotton, G. Lockwood, Houston; Harry N. Roberts, and R. A. Thompson, Jr.



Alcoa starts up another new plant

Aluminum poured from the first operating potline of Aluminum Company of America's Rockdale, Tex., Works last week. A second potline will be ready for production this month, and the third and fourth lines are scheduled for completion next spring. When all are in operation the new $115-million installation will produce about 170,000,000 lb of aluminum a year.

For Alcoa it marks another milestone in a current $350-million expansion program. This summer brought in an expansion of smelting facilities at its Point Comfort Works, in Texas; finishing touches are going on a $60-million smelting plant at Wenatchee, Wash., this month. Two months ago Alcoa started production at its $55-million Bauxite, Ark., alumina works; last week it announced it would build another $5-million addition.

Altogether, when these new projects are in full operation, they will boost Alcoa's annual capacity to produce aluminum by some 410,000,000 lbs. Coupled with current expansion by Kaiser Aluminum and Chemical Co., Reynolds Metals Co., Anaconda Copper Co., and Olin Industries—they will be of great help in pushing the total output of aluminum toward the 3,000,000,000-lb rate by the end of next year.

The Rockdale plant just going into operation, will be the first in the country to use electric power generated by burning lignite. The power plant is being designed and built by Ebasco Services. Bethlehem Steel Co. fabricated and erected 11,000 tons of structural steel for the plant's 20 acres of buildings (See photo above). Al Johnson Construction Co. did the concrete work.

Still in the offing: Alcoa's proposed $400-million aluminum smelting project near Skagway, Alaska. Legislation to expedite this project will go before the next session of Congress.

Harvey plans aluminum plant in Northwest

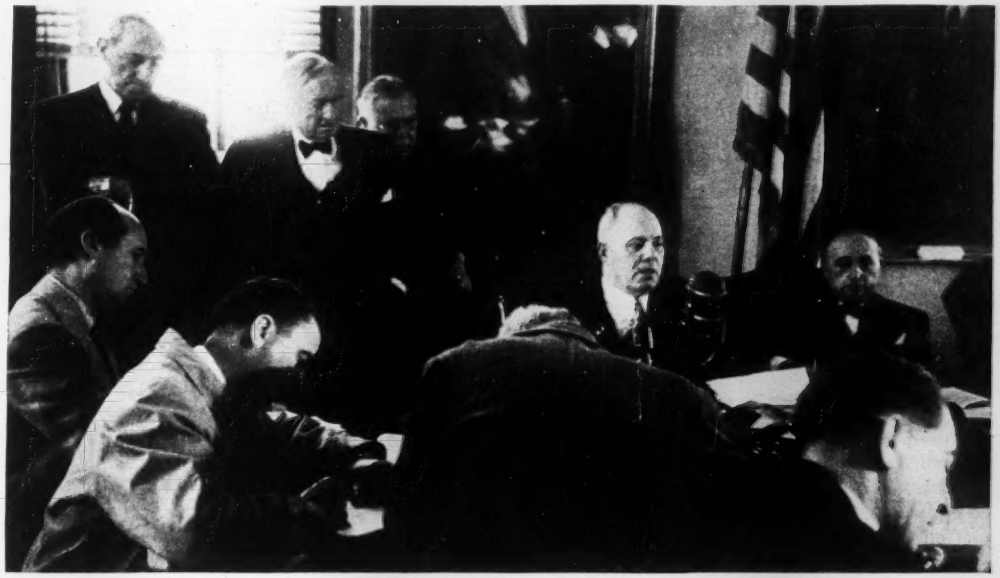
Another aluminum reduction plant in the Pacific Northwest is projected by Harvey Machinery Co. The plant with an annual capacity of 45,000 ingot-tons would be located near The Dalles, Oregon, and use electricity to be generated at McNary Dam.

Lawrence, vice president of the machinery firm, said work on the $45-million project would begin as soon as Defense Production Administration allocates needed construction materials.

In Washington, a spokesman for DPA's Office of Aluminum reported that the Harvey proposal had not yet been approved. Main reason for delaying a decision, the spokesman said, is that final arrangements have not been presented for financing.

Bauxite from Surinam on the Caribbean coast would move by ore carrier to The Dalles, via the Columbia River channel and Bonneville Dam Locks. The inland river port has had ocean barges and small freighters berthed at municipal dockside, but on rare occasions.

The Pacific Northwest is currently curtailing firm power industrial loads because of summer drought-induced shortages of water in the Columbia's reservoir, and this may figure in whether the DPA approves additional primary aluminum loads in the region. Sources close to both Harvey and The Dalles interests admit there is opposition.



GEORGE MEANY (at microphone) newly elected president of the AFL at a press conference watched by the AFL elder statesmen. (ENR photo by Compton)

Building trades veteran heads AFL

By Joe Gambatese
Washington Staff

The building trades unions this week hailed one of their own as the fourth president of the American Federation of Labor—George Meany, plumber and son of a plumber.

AFL secretary-treasurer since 1939 and actually running the AFL during the recent illness of President William Green, the 58-year-old former business agent of a New York City plumbers local was the natural, and unanimous, choice of the AFL executive council to succeed the late William Green.

Green, a miner, died Nov. 21 at his home in Coshocton, Ohio. He was 82 and had been president of the AFL since Samuel Gompers' death in 1924.

On Jan. 1, William F. Schnitzler, 48, president of the Bakery & Confectionery Workers, will become secretary-treasurer of the AFL. This will give the AFL a rather youthful front-office leadership, by AFL standards, although old-timers still run the 13-member executive council. Septuagenarians William L. (Big Bill) Hutcheson of the carpenters and Daniel J. Tobin of the teamsters have relinquished the presidency of these unions—largest two in the AFL—but keep their seats on the executive council, the AFL's powerful ruling body.

Meany is an able union leader, aggressive, outspoken. He can hold his own with the best of them, will put new vitality into the AFL, which until recently was overshadowed by the younger, more imaginative CIO. He is cheerful, friendly, yet adamant.

What does Meany's ascendancy to the top of the AFL mean to the construction industry? To the AFL and the labor movement as a whole? To the country?

Meany's elevation was a popular choice among AFL leaders, and this was especially true among those in the building trades.

President Richard J. Gray of the Building & Construction Trades Dept. is a Meany booster from back in the days when the new AFL president was active in the New York Federation of Labor. Gray, former business agent for a bricklayers local in Albany, backed Meany for vice president of the New York Federation in the 1920's. Meany was elected and, in 1934, became president of the state body and served until he became AFL secretary-treasurer in 1939.

Gray's high regard for Meany is reciprocated by Meany, who included Gray among several labor leaders he suggested to President-elect Dwight D. Eisenhower for Secretary of Labor. This despite the fact Meany was one of those who was largely responsible for the AFL convention making a presidential endorsement—for the losing Democratic candidate, Gov. Adlai E. Stevenson—for the first time since 1924.

Gray himself liked Ike, felt the AFL should not make any commitment for either candidate.

Others echoed Gray's applause for Meany, including President Daniel W. Tracy of the Electricians and President William E. Maloney of the Operating Engineers. Even President Albert J. Hayes of the Machinists described Meany as the "logical choice" for the top job.

• **Disputes**—There remains, of course, the problem of jurisdictional disputes in the building trades crafts. The National Joint Board for Settling Jurisdictional Disputes in the construction industry will not be affected by the change. The board is the creature of

(*Continued on page 31*)

McKIERNAN-TERRY PILE HAMMER

helps build a dam in India

The land of the Taj Mahal is going modern in a big way. In fact, the Damodar River project, which includes two dams and a steam power station, will supply power for the most highly industrialized region of India. Harza Engineering Company served as consultants on this project.

Naturally, a McKiernan-Terry Pile Hammer was called on to do a vital pile-driving job on this $142,000,000 project. Hundreds of steel piles for the cofferdam, shown in the photographs, were punched down with a McKiernan-Terry No. 7 Double-Acting Hammer.

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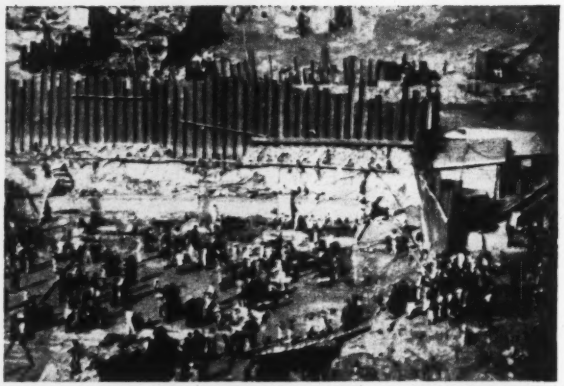

McKiernan-Terry No. 7 Double-Acting Pile Hammer

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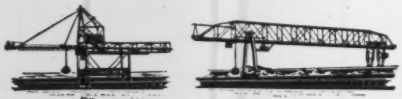

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the Building Construction Trades Dept. and the construction industry. It will continue, with improvement from time to time. The problem of the "withdrawal" by the International Brotherhood of Electrical Workers will come up for discussion at the next meeting of the building trades executive council at Miami in February.

But there are disputes which extend beyond the building trades, notably that involving the machinists. The machinists, not a member of the building trades group, have been running into conflict with the carpenters and operating engineers on construction projects. Meany plans to dig in and try to clear up these and other jurisdictional squabbles.

The AFL executive council has taken steps several times to clear them up, without luck. Meany takes a practical view.

"Decisions don't settle anything," he says, pointing out that sometimes more can be accomplished by individuals. He intends to use personal persuasion to achieve intra-AFL peace.

The machinists are hopeful. Haves says they have no intention of pulling out of the AFL again.

"We are in the AFL and we will remain in the AFL," he told ENGINEERING NEWS-RECORD. "We have problems, and they will be cleared up."

• **Executive council**—Building trades strength on the executive council is not affected by the change. The 19 building trades unions, with 3,000,000 members, continue to have five of the 13 places on the council, not including Meany. Elevation of Meany and selection of the under-50 Schnitzler for secretary-treasurer may speed up the placing of younger men on the executive council. Tobin, Hutcheson and Herman Winter, former president of the Bakery & Confectionery Workers, have all been retired by their unions but have hung on to their places on the executive council.

Some top AFL circles feel that those who are too old to serve their unions as president should not serve on the executive council. This subject will be discussed at Miami on Feb. 2.

• **More militant**—The AFL should become more militant under Meany, with the CIO a prime target despite Meany's proffer of unity. Meany wants to raise AFL membership, already at a record level around 9,000,000 (8,098,000 paid per capita tax on June 30). He gave the AFL textile workers inspiration to engage the CIO in a struggle now in progress for dominance in the textile industry. In six months, the AFL has gained 20,000 new members in textiles.

CONGRATULATIONS ARE GIVEN to George Meany by old friend and backer, Richard J. Gray (left), president of the AFL Building Trades Dept.

Meany is against functional unity with the CIO. He was responsible for the breakup a year ago of the United Labor Policy Committee, through which the AFL and CIO worked together on mobilization problems. Meany wants "organic unity."

"We can't work together without organic unity," he says, asserting that his role in breaking up ULPC shows his desire for bringing about complete unification.

The AFL is reactivating its nine-man committee which held unity talks with the CIO in mid-1950. But Meany will leave it up to the CIO to make the first move toward resumption of those meetings. Meany will not insist on Green's oft-repeated position that the CIO must "return to the house of labor," like a prodigal son. But he will want the CIO to recognize that the AFL is twice as big and has been around for 71 years. **In other words, Meany will be president of any new organization, or there won't be any.**

New leadership in both AFL and CIO should intensify the inter-union rivalries. This means increased activity in the legislative and political areas as well as in organizing and bargaining.

• **Taft-Hartley**—Meany is reconciled to revision, rather than repeal of Taft-Hartley. A committee headed by AFL Vice President Matthew Woll is making an analysis of AFL experience under various parts of the law for presentation to Congress. This includes the experience in the construction industry.

Meany told Eisenhower, just a few hours before Green's death, that the AFL will continue to press for improvements in the standard of living and in legislation affecting labor. And it will fight any attempts "to push labor back."

• **Background**—Meany, a Catholic, has always fought Communists. He denounced the World Federation of Trade Unions, which the CIO helped organize at the end of the war and which the AFL refused to join because of its tie with Communist unions. Later, when the CIO took the same view and quit the WFTU, Meany helped organize the International Confederation of Free Trade Union with both the AFL and CIO unions participating.

Meany was born in New York in 1894, son of the president of a plumbers local. He got his plumber journeyman's card in 1915, was elected a local business agent in 1922. During the five years he was president of the New York Federation of Labor, 1934-1939, the state passed more pro-labor legislation than in any previous period.

Meany has four daughters, lives in Bethesda, Md. Like Eisenhower, he loves golf, but can't play as much as he would like. When he does, he drives a hard bargain with his opponent on the first tee. He shoots a respectable game in the 80s at Columbia Country Club, one of Washington's better clubs. His salary is $25,000.

Strike for same-union subcontractors does not violate Taft-Hartley

There is no violation of Taft-Hartley where a union strikes to force an employer to agree to select only subcontractors having contracts with the same union.

The new application of the Taft-Hartley jurisdictional strike ban by the National Labor Relations Board was made last week. It cost Anheuser Busch a round in its fight with the AFL machinists over the right to select contractors for extra machinery installation work, and it may have a far-reaching effect on the construction industry.

NLRB dismissed a complaint by the company alleging IAM conducted a jurisdictional strike at the St. Louis plant. Just what Anheuser Busch can do now is not clear, but the ruling does not wind up the matter by any means.

• **Feud**—Behind the action last week is a long history of strikes and feuding between the machinists and the AFL carpenters union at Anheuser. Both unions have contracts covering separate groups of Anheuser's inside employees. But the trouble stems from Anheuser's practice of hiring outside contractors for machinery repair and installation known as millwright work.

Anheuser operations require constant additions and improvements in its facilities. The company sometimes uses its own employees for such work, but frequently hires outside contractors for the job. Both the IAM and carpenters want Anheuser to exclude contractors having bargaining agreements with the other union.

As far back as 1939, the carpenters struck to protest assignment of millwright work to IAM contractors.

In 1949 IAM signed a contract with Anheuser which, among other things, limited outside contractors to those having agreements with IAM. The same provision was dropped from the 1950 contract but put back into the 1951 contract.

• **Threats**—Meanwhile the carpenters and the St. Louis Building and Construction Trades Council notified Anheuser that no contract between them could be signed until the IAM contractor provision was stricken. The Associated General Contractors were also told that no work on Anheuser projects would be performed unless all work—including millwright work—was performed by AFL Building Trades craftsmen.

And, during 1950 and 1951, the carpenters stopped work on several Anheuser projects because those terms were not followed.

In order to get the work finished, Anheuser gave written assurance to the carpenters that, after the 1951 IAM contract expired, the company would not renew the contractor provision.

IAM tried to renew the provision in 1952 negotiations but the company refused, living up to its promise to the carpenters. In protest, the machinists walked off the job and set up picket lines around the plant.

• **Enter Taft-Hartley**—Under the Taft-Hartley law, a strike to force an employer to assign particular work to members of one union rather than to members of another is illegal.

Anheuser charged that the IAM strike, as a demand for the contractor limitation, amounted to a violation of this section of the law.

But the labor board said no.

At the time of the strike, only one of several construction projects at the plant required millwright work—and that was being performed by an IAM contractor. Because of that fact, said the board, the strike was not over a work assignment of the employees of a contractor doing millwright work for Anheuser.

In previous decisions on jurisdictional strikes, the disputes arose when two or more unions claimed the same work assigned by the employer. Here, said the board, there is no dispute over work assignment to any of Anheuser's employees, but over IAM's demand to limit Anheuser's selection of contractors by terms of a collective bargaining contract.

Therefore, said the board, this dispute—including IAM's demand and its strike—is not the same thing as a "present demand for the assignment of work" outlawed by Taft-Hartley.

Chairman Paul Herzog and members Murdock, Styles and Peterson signed the NLRB opinion.

Informing doesn't help

Wage-control violators who "inform" on others will not get any special consideration when it comes to their own penalty. The National Enforcement Commission has made that clear in a case involving Miami Plastering Co., Miami Beach, Fla.

NEC rejected a settlement reached by its regional commission in which Miami Plastering Co. agreed to have $1,398 of its payroll disallowed as a cost deduction for tax purposes. This amount represented only one-third of the excess wage payments of 25 cents an hour the firm paid to plasterers over a three-month period last year. Total payroll in violation amounted to more than $16,000.

The regional commission cited the Miami Plastering Co.'s cooperation in naming other probable violators as a mitigating circumstance in agreeing to the light penalty. NEC rejected "informing" as a mitigating factor and instructed its regional officials to reconsider the case.

Wage control violations draw $75,000 tax penalty

The largest penalty yet imposed for violation of wage controls has been agreed to by the builders of "Hoffman Heights" homes in Aurora, Colo., a suburb of Denver.

The government and two companies owned by the same family—F. & S. Construction Co. and Hoffman Plastering Co., both of Phoenix, Ariz.—agreed that $75,000 in excess wage payments will be disallowed as a cost deduction for income tax purposes by the Bureau of Internal Revenue, according to Reid Williams, regional counsel for the Wage Stabilization Board.

The amount is double the $38,000 disallowance against Hedin Construction Co. (ENR April 24, p. 32) in the first big construction-industry enforcement case.

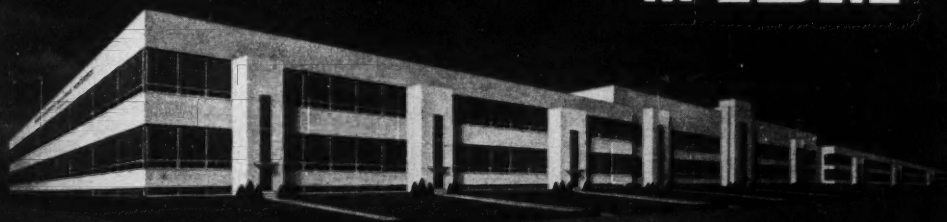
The $75,000 represents above-ceiling overpayments in wages to bricklayers, cement finishers, plasterers, lathers, plasterer tenders and mason hodcarriers, covering the entire stabilization period from Feb. 1951 until the present. The government had 37 witnesses ready to testify at a public hearing in Denver last week when the settlement was reached.

Investigation of the two company payrolls was directed by WSB from Washington after complaints reached the Capital that the illegal wages were disrupting normal wage scales and that scarce construction workers were being pirated.

The contractors have also been building homes in Pueblo, Colo.; Albuquerque, N. M.; Cleveland, Ohio; and Phoenix and Tucson, Ariz.

DRIVE-IT

FASTENS WOOD TRIM TO STEEL WINDOWS AT IBM



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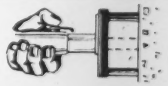

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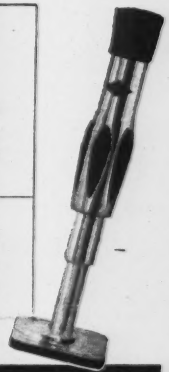
DRIVE-IT "300", lowest cost fastening tool. Low original cost and low operating cost.



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Levittown, Pa. . . . a city from scratch

Arthur J. Fox Jr.
Associate Editor

WHILE LEVITT the homebuilder whips together 40 houses a day with a practiced left hand, Levitt the city-builder—a new alter ego—tries an agile (if less experienced) right hand at municipal engineering.

Levittown, Pa., may become the Quaker State's tenth largest city. And Levitt & Sons, world renowned builders of houses, this time will wrap up a complete community.

This is not to say that the 17,500-home Levittown on Long Island is just so many houses. Far from it. Brother Alfred Levitt had his hand in laying out what is considered to be a well-planned residential community. But the new Levittown—where over 2,000 of an eventual 16,000 families are already settled in 3,000 completed units—has demanded planning, plus.

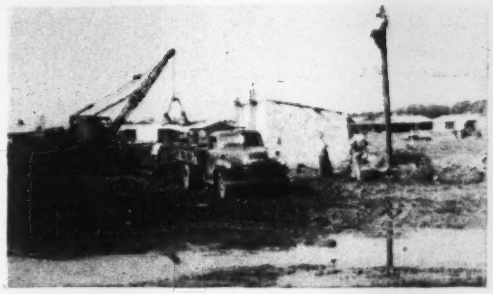
There, on a vast tract of Pennsylvania farmland near Trenton, N. J., a municipal entity to house Fairless Works steelworkers (among others) is being built from scratch.

There were no ready water suppliers big enough to tie in with; land to be developed was not the uniform, absorptive sand that makes most of Long Island a cesspool paradise; there was no simple solution to the problem of draining the 6,000 flat, river-valley acres.

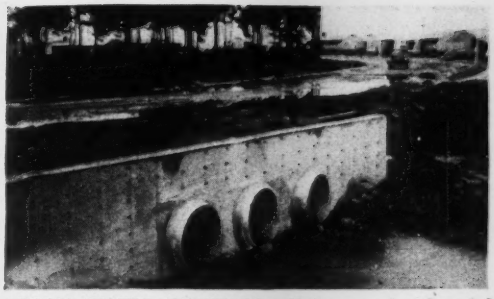
(On Long Island, Levitt was able to space borrow pits all over his project, later run storm sewers to them, fence them in and call them groundwater recharging basins.)

CLARENCE A. MONROE . . . Levitt's chief engineer (left), was a consultant on land planning and municipal engineering before joining the famed homebuilder 17 years ago. Earlier experience as a civil engineer in highway and railway jobs followed correspondence-school education. He's a young-looking 52.

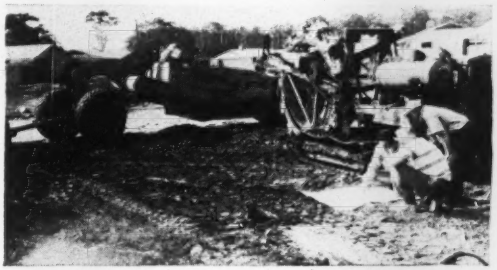
NORMAN DENNY . . . 32-year-old vice-president in charge of purchasing and supply (right), heads up subsidiary North Shore Supply Corp. He came to Levitt from the Navy in '46 after service as a Seabee supply officer; succeeded deceased predecessor in 1947 to take over big supply and logistics job.



PUMPING STATIONS and sewers were designed by Levitt's own engineers. Utility poles go in and power is delivered as families move into the area this station serves.



STORM WATER DRAINAGE will be grassed and graded open-channels and concrete pipe up to 48-in. diameter, as in this triple culvert.



UTILITY CONSTRUCTION requires coordination to keep up with the mass production of houses. The scraper-ditcher team prepares for sidewalks and streetlight cables.

MID-SPAN CONNECTION of house lines to power lines running along the rear of property made possible great savings in poles.

• **Costs can't wander**—The way the Levitt operation is organized it is Brother Bill Levitt's job, as president, to build and sell houses. It is Chief Engineer Clarence A. Monroe's worry to keep the house costs profitably under the sale price.

With its mass production methods and its great experience, the Levitt organization by this time knows what it costs to build a house—down to the nearest couple of cents. And fairly easily it can break down to a per-house basis the price of septic tanks, streets, water pipe or recreation facilities. But the building of a water supply, sewage treatment plant, and an extensive drainage system were new and formidable problems for Levitt—full scale municipal problems, all inextricably tied in with the set $10,500 price of a house.

The fact is, $22 million worth of water supply, sewerage, land development and recreational construction will go into Levittown, Pa. Half the man-hours to be spent in building the place will go into site preparation and community facilities.

For these facilities Levitt has lots of engineering brains. Under Clarence Monroe a fluctuating force now 40 strong picks up with the original land surveys and goes through all design of streets, sewers, drainage structures, gas and electric utilities, parking facilities and commercial buildings.

Meanwhile, Norman Denny, as boss of the subsidiary North Shore Supply Corp., works his staff of 10 engineers in the buying and supplying of all materials, plus supervising a myriad of small contractors engaged in some step or other in mass producing houses.

• **Everything regimented**—North Shore Supply Corp., wholly owned by Levitt, operates in a singularly peculiar manner. It is at one and the same time owner's representative and general contractor, responsible for all the logistics and construction operations right up to the on-site assembly of the house. Briefly, this includes maintenance of one mile of railroad siding, 40 acres of materials, stock yards, 10 acres of prefabrication shops, a 2,500-cu yd per day, $165,000 concrete plant—plus coordination of all subcontracted materials-handling operations.

Subcontractors under North Shore unload freight cars; precut and package lumber into "house bundles"; prefabricate plumbing; build formwork or deliver materials to the site. It is said that Levitt's forces at the home-site can put together a house with hatchets, just trimming and nailing with no need to use a saw unless a piece breaks, requiring replacement.

These subcontractors, it should be noted, are mostly long-time Levitt associates. Many were foremen in the Long Island operation. As an incentive to productivity, Levitt saw early in the game an advantage to setting a man up as boss of an operation and giving him a contract for the whole job, rather than a wage. Some of these Levitt-made specialty contractors have left the fold. But many followed along to the Pennsylvania job. There is no competitive bidding; the contractors and Levitt just "bang heads a while" and come up with a negotiated price for the work involved.

• **Engineering talent added**—Despite his concentration of engineering brain power and his inbred contracting arrangement, the world's biggest private home-builder had to seek help on some of the new (to him) problems in Pennsylvania. Levitt engineers laid out and designed drainage and sewerage; Albright & Friel were consulted for a check on this work. And the Philadelphia consulting firm fully designed sewage-treatment facilities. Hydrotechnic Corporation and Geologist Max Legette, both of New York, consulted on water supply and purification.

Water supply and sewage facilities

SEWAGE WORKS, complete activated-sludge treatment for 70,000 people, was designed for Levitt by a consultant, as was shallow-well water supply on the Delaware River shore. Contractors bid before sewage plant design was complete.

for Levittown, Pa., have been described generally in ENGINEERING NEWS-RECORD's earlier (May 15, p. 51) story of Fairless Works' impact on the whole lower Bucks County region.

Design of these utilities is for the most part conventional. Speed—in getting them under contracts and built—was what distinguished their construction.

In sewage disposal, having primary treatment and chlorination ready for the date of first occupancy of homes was the basic problem. Albright & Friel were called upon to design the works in late August, 1951. The first families arrived June 23, 1952.

• What treatment for sewage?—Basis of design had to be arrived at quickly. Conferences were held by the consulting firm with Clarence Monroe, Fred J. Bicle, his sanitary engineer, and the Pennsylvania Department of Health. Decisions were made on whether to allow for possible industrial wastes or use of garbage grinders. (No definite type of industrial wastes could be foreseen and provision for ground garbage was figured as an unjustifiably added half-million-dollar cost of plant, so both decisions were negative.) A plant to serve 30,000 persons now, as many as 70,000 later, was considered—with complete activated sludge treatment of the domestic sewage.

Several contractors were called to quote lump sum bids, based on outline plans and guided by complete plans for another, similar plant. The three bids submitted on this basis varied less than 10%, high to low. The contract went to R. M. Luff Construction Co. of Willow Grove, Pa.

Bids received were interesting in that in their price for a plant to serve the future 70,000 population they were only 30% above a price on a plant to serve 30,000. Levitt decided to go ahead with the expanded plant, take the more than double capacity at the 30% increase in cost.

Construction began Jan. 1, 1952, and by May 1 primary settling tanks, chlorination facilities and the outfall to the Delaware River were ready to use. Primary treatment awaited first occupants of Levittown, Pa. By the end of '52, secondary treatment will be available; the plant will be finished completely by next May.

The nature of the community dictated some design features. Levittown land is at a premium, desirable for commercial development. So the plant had to use up as little space as possible, create no nuisance, and offer a pleasant appearance. Thus:

1. There are no sludge drying beds; sludge is to be vacuum filtered, and wet cake will be disposed of to farms.

2. To avoid septic conditions, all channels are aerated from primary tank effluent through secondary tank influent.

3. A spray system is being installed at the surface of aeration tanks to minimize frothing.

4. The plant will be landscaped to look like a high-class industrial establishment. But frills and expensive interior finish have been avoided in the interest of economy.

Sewers throughout the city were designed by Levitt's own engineering force, and their design was checked by Albright & Friel. It was not only required to have house connections made to completed sewers when families moved in. It was also necessary to have water flowing in the sewers to prevent septic conditions from developing before design flow of sewage could be attained. A flow of 100,000 gpd had to be introduced from the start to carry sewage to the disposal plant. Eight pumping stations throughout the system eventually will boost sewage across the flat terrain toward its treatment.

• Water supply and distribution—Water comes from five shallow (40-ft) wells in the bank of a bay on the Delaware River—a bay that has been manmade by dredging operations of War-

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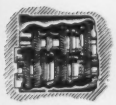

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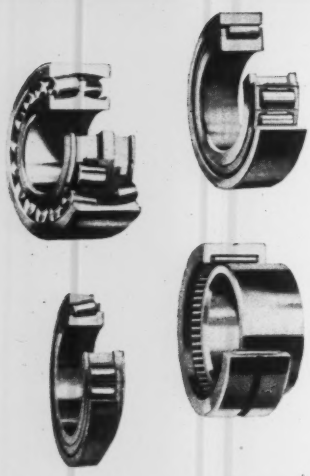

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ner Sand & Gravel Co., Philadelphia. Pumps actually draw river water in through the gravelly river bank, as well as tap groundwater.

When Hydrotechnic Corp. was consulted on water supply, it was told only the land area and an estimated population density. And, it was told when water would have to be available. Before a single house had been started a complete schematic distribution system was sketched as a basis for the waterworks design. And now that houses are being completed, the final design and construction of the distribution system must keep ahead.

Speed required by the necessarily early delivery date influenced design and construction—as with the sewage works. Shallow wells were chosen not only as the cheapest water source but as the source that could be made to produce soonest. Each of the five wells now in use is rated at 1,050 gpm; five more are proposed.

Eventually, supply must be built up to meet an expected 15-mgd demand. This demand is based on 100 gal per capita per day and no industry.

Two 750,000-gal elevated storage tanks will serve the system. One of these is now under construction. Thus far, water has been pumped directly to the point of consumption, with special pressure-relief provisions built into the system. The present supply is chlorinated but requires no other treatment. One well is on auxiliary power for operation in the emergency of a power failure.

Three deeper wells in Levittown draw water for air conditioning use in commercial buildings. Deep wells in the area were discounted as domestic water supply because of objectionably high iron content.

• **Storm water**—Storm water drainage is a problem of some proportion, for this city is partly on flat, relatively impervious land. Drainage lines get up to 48-in. diameter—then drainage ditches take over. Ditches reach 60-ft bottom width, will be graded to 1 on 1 side slope and will be seeded. As pictured in the accompanying illustration, batteries of big-diameter concrete pipe culverts carry drainage ditch flow under roads and streets.

Some 150 miles of streets will be built before Levittown, Pa., becomes a city. Widths are 26 and 34 ft. Arterial and feeder routes are dual 22-ft roadways divided by 20-ft center strips. Five-inch unreinforced concrete slabs are laid first, curb to curb. This surface is used by traffic throughout construction. With some $40 million worth of houses already built, the work of putting asphalt on streets was just started in October.

• **Utilities conveniently located**—Sewer pipes are buried at rear property lines, so streets won't ever be dug up for services. Only street lighting cables and water mains run in front of the houses, and these are buried alongside the sidewalks.

Power lines are strung from poles along rear property lines. And the number of poles needed has been cut about in half by Levitt's success in selling the mid-span connection (illustrated) to Philadelphia Electric Co. for its first large-scale application.

Some $25 million worth of commercial buildings is planned for shopping centers. And in addition there are Levitt's administration building plus his house sales layout of home and building product exhibits. Recreation areas will take up 200 acres of space. The largest single portion of this will include a 30-acre artificial lake now being dug near the center of the future city as construction forces work it for borrow.

Lastly, school sites sold at cost, and church sites, deeded over gratis by Levitt, will round the development out into a city.

Dam pouring speeded

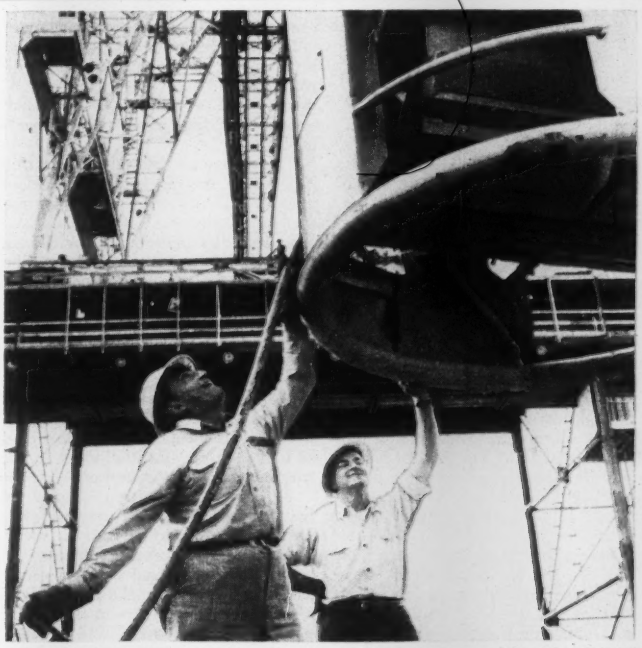
Concrete pouring, delayed until a month ago, is being pushed in a race with the weather by contractors for the $58-million Folsom Dam on the American River near Sacramento, Calif.

The pouring was held up when contractors Merritt-Chapman & Scott Corp., of New York, and Savin Corp., of Hartford, Conn., had to excavate deeper for foundations than had been anticipated. Soft granite, showing signs of disintegration and sliding, was encountered, even though core drill samples had indicated the original foundation depth to be sound.

Aim now is to pour enough concrete to raise the dam to stream level. A tunnel diverting the river's flow is not big enough to handle heavy winter storm flows of the American, and a washout of the upstream cofferdam would undo much of the excavation work if the stream level is not reached.

Meanwhile, work on Nimbus Dam, the reregulating dam for the Folsom power plant, is proceeding on schedule. The dam and 162,000-kw power plant are slated for operation by late 1954 or early 1955.

Contractors for the job are Winston Bros. Co., and Al Johnson Construction Co., of Minneapolis, Minn. First concrete pouring began Oct. 22.



HERE IS THE FIRST 4-cu yd bucket of concrete being lowered for Monolith 28 at Folsom Dam guided by Michael Krumpotic, left, concrete foreman for the contractors, and Robert B. Jenkinson, project engineer for the Corps of Engineers.

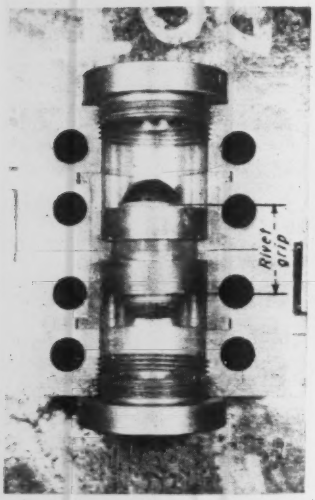


FIG. 1. JOINT to be tested, made with one rivet, was placed between . . .

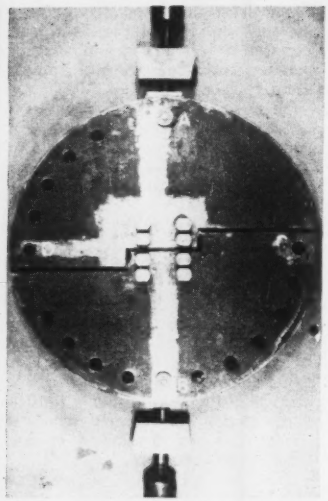


FIG. 2. TWO SEMI-CIRCULAR DISKS in a tension testing machine so that . . .

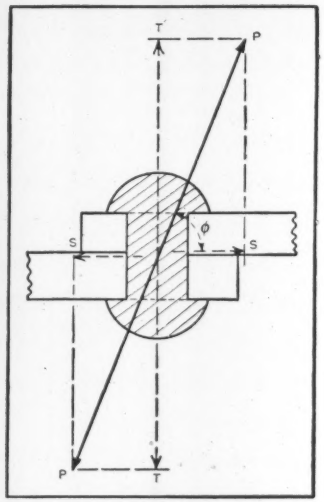


FIG. 3. OBLIQUE FORCE could be applied to create both shear and tension.

How much combined stress can a rivet take?

T. R. Higgins
Director of Engineering
American Institute of Steel Construction
New York, N. Y.
and
W. H. Munse
Research Associate Professor
University of Illinois
Urbana, Ill.

DESIGN SPECIFICATIONS are pretty much in agreement on how much shear to allow in a rivet. But they are far apart on how much tension a rivet might carry, let alone on what to permit for a combination of tension and shear. So the Research Council on Riveted and Bolted Structural Joints sponsored laboratory tests to learn how much combined stress a rivet can take.

The test results indicate the type of revisions of present design specifications for tension and shear in rivets that might be warranted.

Two somewhat dissimilar conditions arise in engineering practice for which specification provisions would be desirable. The first involves a determination of the maximum tension stress that may be permitted in a rivet subject to a given amount of shear, or conversely, the maximum shear stress that may be imposed on a rivet loaded with a given amount in tension. The second concerns the proportioning of rivets in a connection to resist an oblique load.

• What current specs allow—Until recently, design specifications have frowned on the use of rivets to carry tensile forces. The American Association of State Highway Officials' specification for design of highway bridges, for example, states that "rivets in direct tension shall, in general, not be used, but if so used, their value shall be one half that permitted for rivets in shear."

The American Railway Engineering Association specification for design of railroad bridges does not mention rivets in tension.

In the 1946 revision of the American Institute of Steel Construction specification, the allowable tensile stress on rivets was increased from the value permitted for shear to one and one-third times that value, after tests indicated higher tensile stresses were justified. However, for a rivet subjected to a combination of shear and tension, the resulting stress was limited to the shear value because of a lack of definite information as to the true interaction relationship.

In 1950, the Research Council on Riveted and Bolted Structural Joints initiated a program of tests in which the strength of rivets subjected to combined tension and shear was studied. Also included in the program was a study of the manner in which the strength of the rivets was affected, under several shear-tension ratios, by such variables as the rivet grip, rivet diameter, method of driving and the way in which the rivets were manufactured. The principal variable, however, was the tension-shear ratio, or the ratio of the tensile component of force acting along the rivet axis to the shearing component of force acting normal to the rivet axis.

• Ingenious test setup—The tests were conducted in the Structural Research Laboratory of the Department of Civil Engineering at the University of Illinois by H. L. Cox. He used a clever, but simple device to apply various ratios of tension and shear with a tension testing machine. (This type of loading device had been used at Penn College by R. H. Pancoast in connection with a research thesis on bolts.)

Each test rivet connected two identical cylindrical pieces of steel, which provided a shoulder for receiving and transmitting a pull to the rivet head. The specimen was inserted between two large, semi-circular steel disks that had been formed by making a zigzag cut through the center of a single disk (Fig. 1 and 2). These disks had holes around the circumference for connecting to the moving heads of the testing machine.

When the specimen was placed in the machine in a vertical position (A and B aligned vertically in Fig. 2), it was subjected to pure tension. When it was horizontal (C and D aligned vertically) it carried only shear. And when it was in an intermediate position, it took both shear and tension, in a fixed ratio.

Rivets were driven in accordance with typical shop practice for hand-pneumatic and machine-driven rivets.

• **Effect of rivet size**—The results of the tests may be summarized briefly as follows:

1. An increase in grip from 1 to 5 in. produced a reduction in ultimate strength of approximately 8%.

2. Rivet diameter, varying from ¾ to 1 in., had little, if any, effect on the stress at failure in the rivets (computed from area of rivet as driven).

3. When loaded only in shear, the machine-driven rivets (from one fabricator only) appeared to be slightly weaker than the hand-pneumatic driven rivet. When loaded in tension, the rivets showed negligible difference in strength.

4. The effect of method of rivet manufacture (hot or cold-formed) upon the ultimate strength was insignificant.

5. Character of fracture and ductility of the rivets changed materially as the loading varied from shear through combined shear and tension to tension.

• **Failure stresses compared**—Data from tests of 230 rivets were plotted to indicate the relationship between the strength of a rivet and the direction of loading (Fig. 4). Ordinates and abscissas of this plot are, respectively, the tensile and shearing components of the oblique failure load divided by the failure load in pure shear.

Table I shows average ultimate strengths obtained for four tension-shear ratios. Most of the rivets were tested at these four ratios.

• **Tests yield stress equations**—It is interesting to note that the average ultimate strength of 52 rivets loaded in pure tension, as reported in Table I, was 1.325 times the ultimate strength of 51 rivets loaded in shear alone. This ratio is almost identical with that of allowable tension to shear stress recommended for rivets in the 1946 revision of the AISC specification (20/15 = 1.333). The maximum deviation from this 1.33 strength ratio, for all test rivets having identical characteristics, was less than 7%.

TABLE I—SUMMARY OF ULTIMATE RIVET STRENGTHS

Tension-Shear Ratio	Ultimate Strength Based on Nominal Area, psi	Ultimate Strength Based on Hole Size,* psi
0 : 1.0	51,580	44,890
0.577 : 1.0	52,330	45,540
1.0 : 0.577	62,020	53,920
1.0 : 0	68,370	59,470

*Rivet hole was 1/16 in. larger than nominal diameter of rivet.

In Fig. 4, the test data is compared graphically with the plot of:

$$\frac{a^2}{1.00^2} + \frac{b^2}{1.33^2} = 1.0 \qquad (1)$$

where a is the ratio of the shear component of force on the rivet at ultimate strength to the ultimate shear strength of the rivet, and *b* is the ratio of the tensile component of force on the rivet at ultimate strength to the ultimate shear strength of the rivet.

Here again, the maximum deviation for any of the test series was under 7%, indicating that a safety factor might reasonably be applied to this elliptical expression to obtain allowable tension and shear stress for a rivet subject to combined loading.

If a tensile stress equal to 1¼ times the allowable shear stress is permitted in the design specification, intermediate working values for various combinations of tension and shear loading can be derived from:

$$x^2 + \left(\frac{3y}{4}\right)^2 = v^2 \qquad (2)$$

where x is the allowable combined shear stress; y, the allowable combined tension stress and *v*, the allowable stress for shear alone.

With either x or y given, you can compute the corresponding working value for the other concurrent stress, or you can read it directly from a chart (Fig. 5), where the prescribed value of v has been taken as 15,000 psi. In everyday practice, you generally can obtain sufficiently accurate values by interpolation from Table II.

If you wish to determine the required number of rivets when the load to be resisted by a riveted connection is represented as an oblique force, *P*, applied at an angle ϕ, to the contact (shear) plane of the connected parts, three methods of solution are possible:

1. The shear component of *P* can be divided by a rivet shear value x appropriate to the angle ϕ.

2. The tension component of *P* can be divided by a rivet tension value y

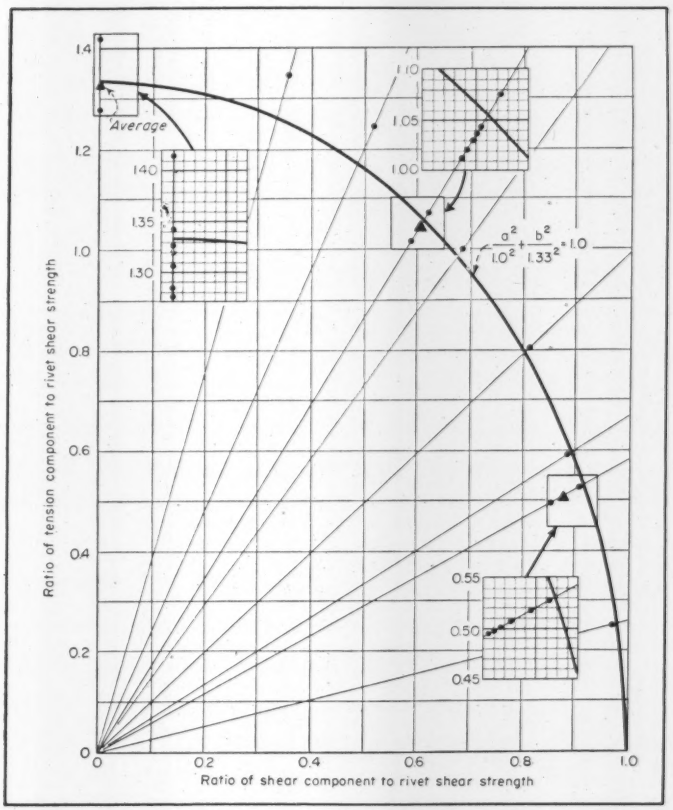


FIG. 4. ELLIPTICAL CURVE closely approximates the average shear-tension relationships at failure for rivets. Dots indicate 1 to 9 tests.

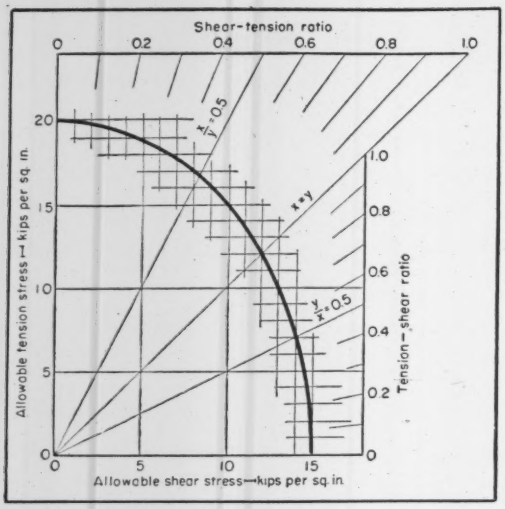


FIG. 5. ALLOWABLE UNIT STRESSES for rivets can be obtained from above curve derived from Fig. 4, or from . . .

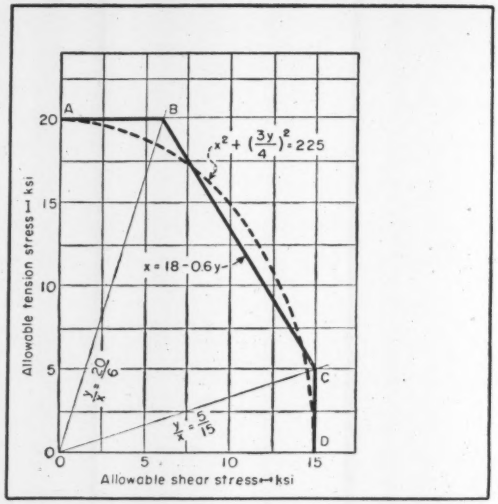


FIG. 6. LINES ABCD, which give nearly as accurately, the combined stresses rivets may be allowed.

appropriate to the angle ø.

3. Or the load P can be divided by a combined (oblique) rivet stress z appropriate to angle ϕ.

The shear component and tension component of the applied load may be calculated as $P \cos \phi$ and $P \sin \phi$, respectively. The tension-shear ratio produced by the given oblique load is given by tan ϕ. Appropriate values for x and y may be obtained from Fig. 5. They are given by the coordinates at the intercept of the ellipse and a line drawn between the origin and the proper point on the shear-tension or tension-shear scale.

The corresponding combined stress z is represented by the segment of this straight line included between the origin and the intercept, measured to the scale of the graph. Algebraically, it can be expressed as

$$z = \sqrt{x^2 + y^2}$$

If we let m = tan ϕ = tension-shear ratio = y/x and n = cot ϕ = shear-tension ratio = x/y, then, from Eq. 2:

$$x^2 = \frac{v^2}{1 + \left(\frac{3m}{4}\right)^2} = \frac{(vn)^2}{\left(\frac{3}{4}\right)^2 + n^2}$$

$$y^2 = \frac{(vm)^2}{1 + \left(\frac{3m}{4}\right)^2} = \frac{v^2}{\left(\frac{3}{4}\right)^2 + n^2}$$

from which the value of z can be expressed, in terms of v and n or n, as

$$z = v\sqrt{\frac{1 + m^2}{1 + \left(\frac{3m}{4}\right)^2}} \qquad (3)$$

$$z = v\sqrt{\frac{1 + n^2}{\left(\frac{3}{4}\right)^2 + n^2}} \qquad (4)$$

Values for z are given in the right-hand column in Table II.

• **Alternative stress formula**—In Fig. 6, a different interaction relationship (lines ABCD) is compared with the ellipse. As indicated by lines ABCD, no reduction in tension stress would be required if the concurrent shear stress did not exceed 6.0 kips per sq in. Also, no reduction in shear stress would be required if the concurrent tension stress did not exceed 5.0 ksi. For combined stresses between these limits, the working stress in shear, x in ksi, could be calculated in terms of the concurrent working stress in tension, y, from the equation:

$$x = 18 - 0.6\,y \qquad (5)$$

If this interaction rule is compared with that expressed by the ellipse in Fig. 5, it will be found that when the tension component is one-third the shear component, the rule permits a combined stress 2.9% higher than that permitted by Eq 2. When the tension component is 3¼ times the shear component, the rule permits a combined stress 7.7% higher.

In the interest of simplification of routine design practice, such differences would not appear to be altogether unwarranted. As a matter of fact, percentagewise the maximum deviation of individual test results here is no greater than in the case of the ellipse. However, it is not the purpose of this report to make specific recommendations, but rather to suggest the type of revisions in present design specifications that would seem to be justified on the basis of the test data now at hand.

TABLE II—WORKING SHEAR-TENSION STRESSES FOR RIVETS*

Angle ϕ deg	Tension-Shear Ratio	Shear-Tension Ratio	Allowable Shear Stress—ksi	Allowable Tension Stress—ksi	Allowable Oblique Stress—ksi
0	0	∞	15.00	0	15.00
27	0.51	1.95	14.00	7.18	15.72
38	0.77	1.30	13.00	9.98	16.40
45	1.00	1.00	12.00	12.00	16.96
49	1.14	0.88	11.40	13.00	17.30
53	1.31	0.77	10.71	14.00	17.63
56	1.50	0.66	9.92	15.00	17.96
61	1.79	0.56	9.00	16.00	18.37
65	2.15	0.46	7.90	17.00	18.75
70	2.75	0.36	6.54	18.00	19.16
76	4.06	0.25	4.68	19.00	19.58
90	∞	0	0	20.00	20.00

*Based on an allowable stress for shear alone of 15 ksi.

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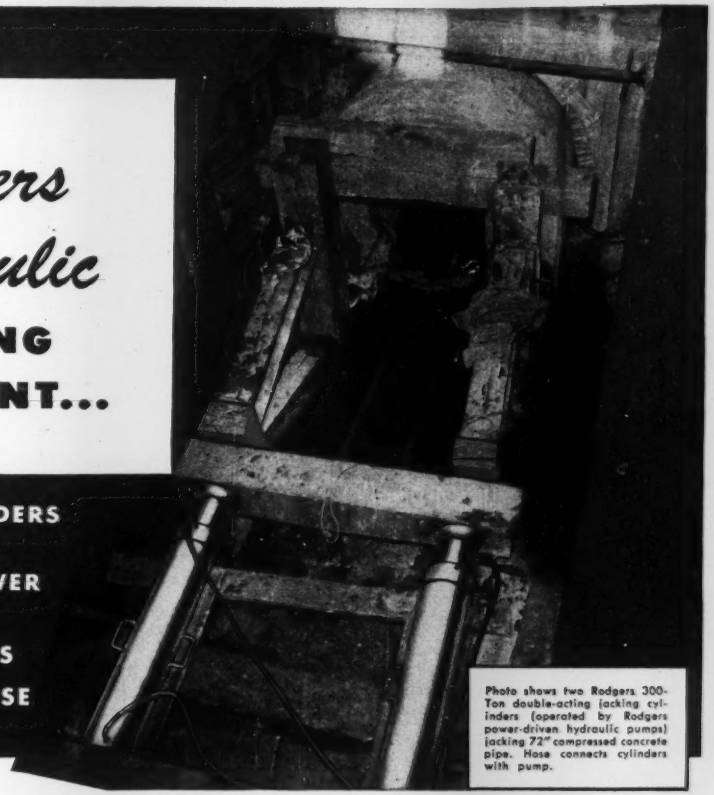

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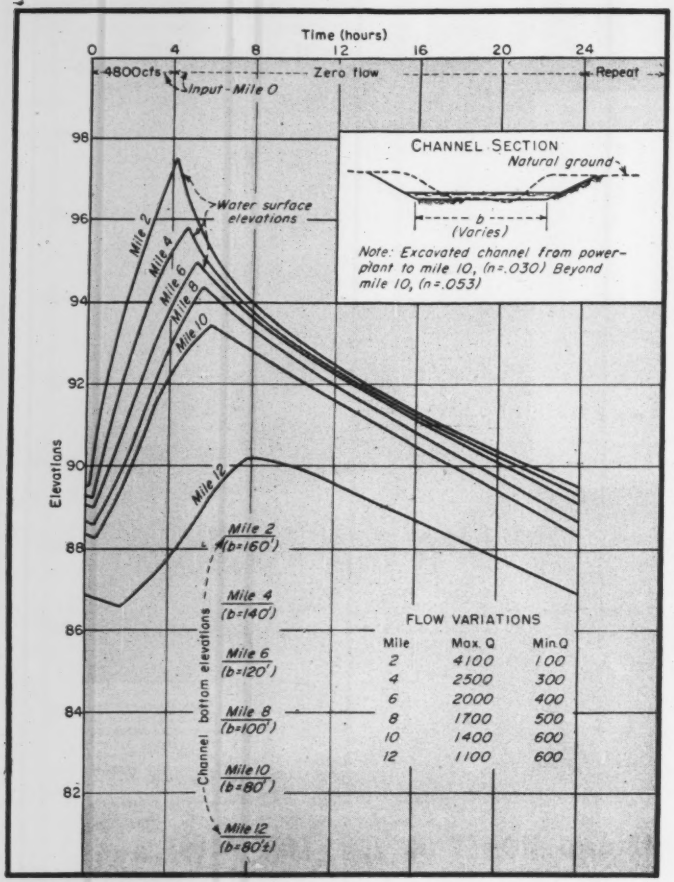


PLOTTED WATER SURFACES, electrically measured, indicated economical feasibility of tailwater-channel improvement for a USBR hydro plant.

Analog circuit solves open channel problem

KARL O. VARTIA
Chief, Engineering Division
USBR Area Planning Office, Austin, Tex.

WHAT WILL HAPPEN in a sluggishly flowing, almost empty channel when a flow of several thousand cubic feet per second of water is turned into it for a few hours, then turned off again? What happens when the cycle is repeated day after day? And if these aren't enough variables to consider in design, suppose both the width and depth of channel continually decrease for several miles downstream.

This was the problem faced by the Area Planning Office of the U.S. Bureau of Reclamation in Austin, Tex., on one of its proposed projects. The solution was by electric analogs, a device that has been so helpful in complex distribution network problems (ENR Aug. 30, 1951, p. 35).

• **The problem**—A proposed storage dam many miles upstream from the point where irrigation waters were to be diverted seemed a likely place for a small hydroelectric power plant. It was desired to study the economics. Average flow at the damsite would be only on the order of 800 cfs, so a peaking type of plant was the only thing considered economically feasible. A low dam, and narrow channel width below, meant a high tailwater level in periods of increased flow. This dictated a small power plant with a maximum flow of about 1,500 cfs, the only possibility.

This plant was then found to have, at best, only marginal economic feasibility.

A full study of the area power requirements showed that peaking capacity with enough water to operate at a load factor as low as 16% could be integrated into the power system as dependable capacity. Consideration was given, therefore, to enlarging the narrow channel and thus lowering the tailwater level for larger plant capacities.

The obvious questions then arose: How much excavation was justified, and, to determine this, how should the channel be designed? In computing resulting backwater curves for tailwater elevation, what flows were to be expected at various points downstream as a result of power plant releases that could be as non-uniform as four hours at full flow followed by 20 hours at no flow?

• **Comparative studies**—It was reasoned that distributed channel storage between the dam and some point downstream could "iron out" intermittent flows substantially into average flow.

Flow was considered to decrease uniformly downstream from the maximum rate at the plant to the average (ironed-out) flow at the point downstream.

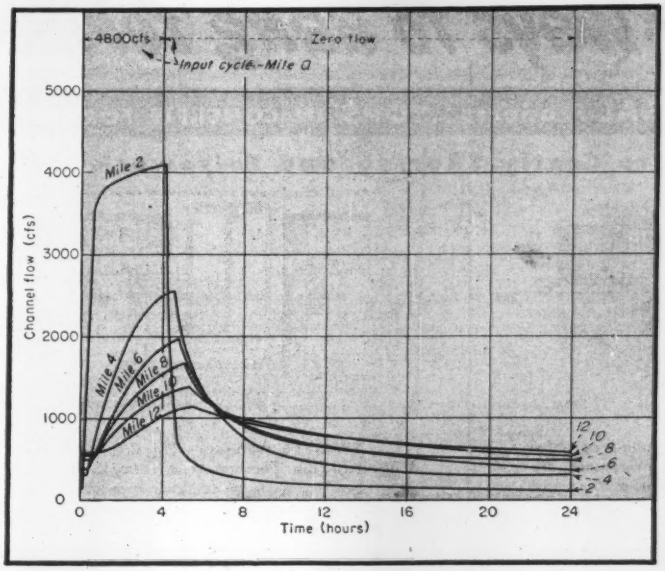
To figure the maximum water surface, these asumptions were made: velocity, 2.5 fps; n=0.030; side slopes, 2:1; bottom width, not less than 80 ft nor more than 10 times the depth. Various discharges were assumed for a range of power production.

Then the backwater curve was figured back from a depth required for average flow at the downstream point being considered.

When a point was located that would reconcile storage and flow for the plant capacity in question, the proposed channel cross section was plotted to that point, and the additional excavation that would be required was figured.

Flows up to 7,200 cfs were investigated in this manner, and investigations showed that further study was warranted.

• **Enter the analog**—More exact hydraulic analyses of the slug flow in a narrowing channel appeared an impracticably rigorous exercise. Model study would solve the problem, of course, but it was decided that a quick electric analog check would be an



DISCHARGE CURVES for points downstream indicate ironing-out effect of time and distance on non-uniform flows in the non-uniform channel.

inexpensive means of determining whether costlier model studies were justified.

Analogous quantities in the free-surface hydraulic flow problem are: condenser capacity to channel storage capacity; resistance to friction; inductance to mass of moving water. At the low velocity and shallow depths worked with in this problem, mass is not a necessary consideration. So inductance was omitted from the circuit without any real loss of accuracy.

For computing condenser capacities and resistances, estimates were made of average flow and mean depth at various points along the channel, from which surface area, hydraulic radii and average velocities were determined and converted into analogous electrical values. To avoid large electrical equivalents, a 24-hr cycle in the prototype was reduced to 1/20 second of analog time by an oscillator-controlled relay switch.

Linear resistors were used, with the conclusion that they would introduce no significant error. The analog circuit was divided into 20 sections, each representing a mile of channel, with resistance increasing from an initial value of 116 ohms for the first and widest section of excavated channel to 587 ohms for each one-mile section of natural channel downstream from the point of assumed uniform flow. Capacitances, reflecting decreasing width, varied from 1.21 down to 0.635 microfarads. In operation of the electrical device, one volt equaled one foot, and one milliampere was 500 cfs.

Water-surface at the end of mile 20 was the base from which head was measured electrically.

Analog circuit operation was first noted on an oscilloscope that showed voltage variations at different points. When results by this method looked satisfactory, operation of the analog circuit was recorded by an oscillograph on sensitized paper.

Voltage variations at points representing miles 2, 4, 6, 8, 10 and 12 are plotted in the accompanying graph; they indicate the sequence of surface fluctuations along the channel. Bottom elevations and bottom widths of the channel are shown on the graph for reference. Maximum and minimum flows at each section are also listed for reference.

No claim can be made at this time for the quantitative corrections of data obtained from the analog. But close agreement between analytical studies using simplified assumptions and corresponding values from the analog study makes it reasonable to assume a thorough hydraulic study will not materially alter the conclusion that the channel improvement is feasible.

The analog study was made in Denver research laboratories of the Bureau of Reclamation under supervision of R. E. Glover. C. R. Daun supervised electrical work. And the author was in charge of initial channel rectification studies for this project.

Air pollution control unit set up by New York

Dr. Leonard Greenburg, executive director of the Division of Industrial Hygiene and Safety Standards of the New York State Department of Labor has been appointed the first commissioner of New York City's new department of Air Pollution Control.

William S. Maxwell, deputy director of the city's present Bureau of Smoke Control, will serve as deputy commissioner.

The Department of Air Pollution Control and its policy-making arm, the Board of Air Pollution Control, will have jurisdiction over control of all forms of atmospheric pollution including smoke, fly ash and chemical fumes from all sources.

Dr. Greenburg, as commissioner, will be chairman of the policy-making board. Also on the board as ex-officio members will be the Housing and Buildings Commissioner Bernard J. Gillroy and Health Commissioner John F. Mahoney.

Retention of Maxwell in the city's smoke control program came as a surprise to those who had opposed the bills creating the new department on the ground that they were actually measures to get rid of Maxwell, who has been an aggressive fighter against illegal smoke pollution of the city's atmosphere.

• **Dr. Greenburg**—Holding an unusual combination of professional qualifications, Dr. Greenburg is both a physician and a sanitary engineer. He is licensed to practice both professions in New York State.

A graduate of the city's public schools and the Townsend Harris Hall High School, he received his degree in sanitary engineering from Columbia University in 1915, a doctorate in public health from Yale University in 1923 and his medical degree from the Yale School of Medicine in 1930.

Among the many professional organizations in which Dr. Greenburg holds membership are: the American Society of Heating and Ventilating Engineers, the New York Academy of Medicine, the American Public Health Assn. and the American Medical Assn.

Before accepting his present job with New York State, Dr. Greenburg was public health officer in New Haven, Conn. For more than 15 years before that he had worked for the U. S. Public Health Service as an expert on air pollution.

He is co-inventor of the standard impinger apparatus for measuring air pollution, and in 1923-24 was in charge of the installation of the present air purifying systems in the houses of Congress.

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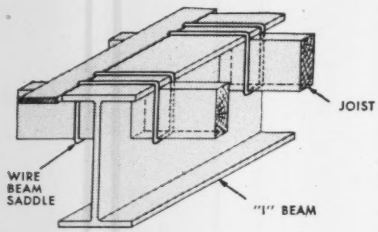

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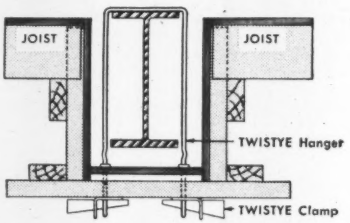

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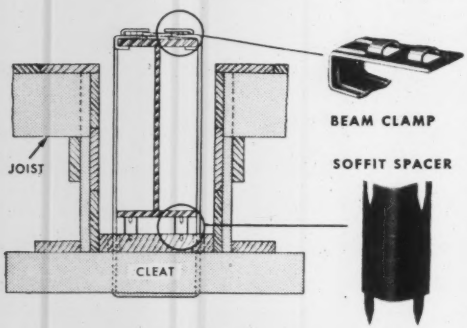

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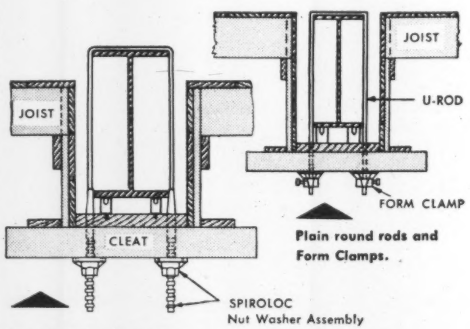

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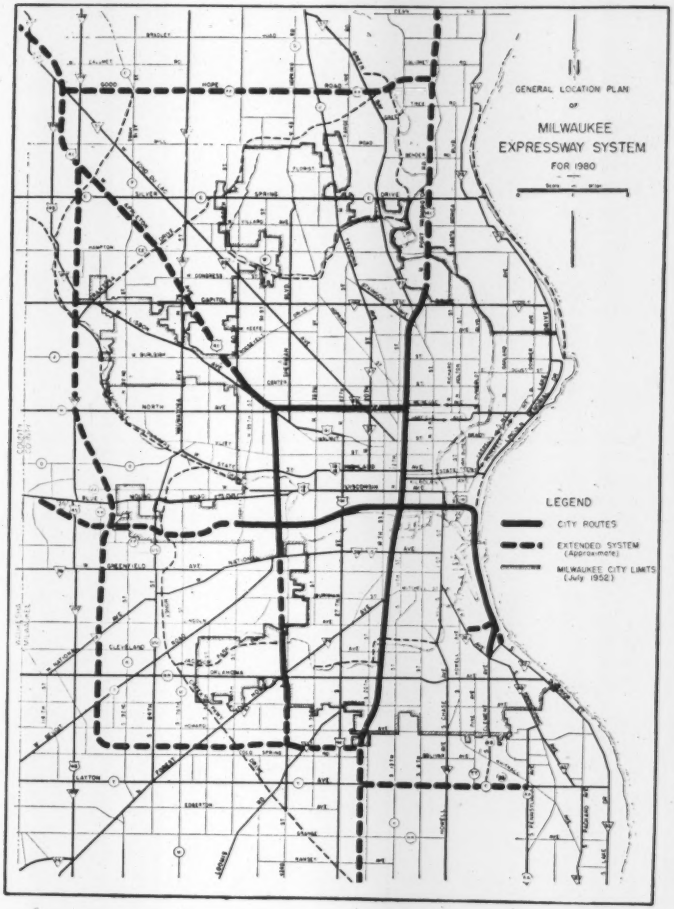


Consultants propose expressway plan to relieve Milwaukee's congestion

Plans for the first 20.5 mi of Milwaukee's proposed expressway system were submitted last month by Ammann and Whitney, consulting engineers of Milwaukee, Wis., and New York. The plans must now be acted upon by the mayor, the city council and the Department of Public Works.

The plans and the report represent eight years of study of Milwaukee's traffic needs by city, state and federal agencies and private consultants.

Here is the gist of Ammann & Whitney's report:

Traffic congestion is now costing citizens thousands of dollars in daily operating losses. With traffic increasing at a steady rate, and little remaining of unused vehicular capacity, the situation is becoming critical. If substantial additions to trafficways are not provided within a few years, motorists will experience rapidly increasing delays and accidents. Additional congestion would bring further economic losses to every segment of the local economy, and result in noticeably accelerated depreciation of property values.

The proposed system of expressways was designed for the expeditious movement of vehicles within, into, out of, and through the city. It was predicated on factors of land use, economics, and a comprehensive city traffic pattern as predicted for the year 1980. Today the traffic rate on Milwaukee streets is 600,000 daily. In thirty years an increase of 50%—900,000 trips daily—may be expected.

• **System**—The proposed system consists essentially of four parts: Two east-west routes, and two north-south routes. Totaling nearly 24 mi, the routes form an interior cordon of limited-access roads connecting with the principal highways leading into the city.

The primary expressway is the East-West Route which bounds the downtown area on the south. Another major element is the North-South Route passing just west of the downtown area. A third is the 44th Street Route, extending from the south city limits to the northwest corner of the city. The fourth is the North Avenue Route, providing a northerly connection between the North-South and 44th Street Routes.

Four complete interchanges provide for the flow of traffic between the four routes, permitting through and turning movements to be made directly and continuously without reducing the capacity of the expressway lanes. Simplified as much as possible, all turning movements are started in the direction drivers plan to take.

• **Design**—Divided by a 12-ft center mall, the proposed expressway will have 6-lane roadways—3 in each direction—with the exception of the 44th Street Expressway, which will have only 4 lanes. Each of these 12-ft lanes has been designed to carry the traffic of 3 or 4 normal city street lanes at 50 mph.

In residential and most commercial areas the recommended expressways are depressed and completely landscaped. Viaduct sections are used only in cases of necessity, at river and valley crossings, and in the downtown area where large volumes of traffic could not conceivably be handled in any other way.

Access has been limited to ramps at about half-mile intervals where specially designed lanes enable cars to enter or leave the moving streams of expressway traffic safely. Parking on the expressways will be prohibited. Extra outside lanes will be provided

for disabled cars and for snow removal purposes.

• **Results**—The expressway will benefit the community in many ways. Experience in other urban areas indicates that expressway systems reduce accidents considerably.

Fringe parks in redeveloped areas along the right routes can be used for recreational purposes.

Heavy traffic which has been blighting residential areas will be removed. Large tractor-trailer combinations and other trucks which at present travel residential and arterial streets will be removed.

Expressway routes will be of considerable value to the city's many defense industries.

To promote the development of express bus routes, complete access to surface streets will be provided at most bus transfer points. This will allow buses to leave the expressway, discharge passengers and return to the expressway.

Expressway ramps have been located so as to be of maximum benefit to both the downtown business area and the civic center.

The expressways will remove 60% of the downtown traffic having origin or destination there. Further reduction will be effected by removing from the streets 86% of the through traffic which would traverse the downtown area without destination there.

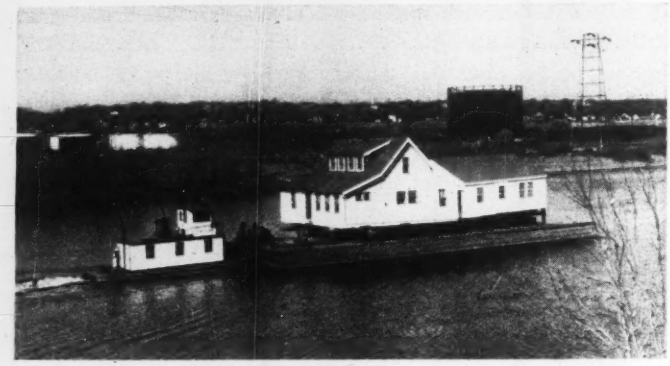
Property values and business volumes will increase substantially under these conditions.

• **Costs**—The cost of 20.5 mi of this proposed expressway system within the city is estimated at approximately $158 million—$100 million for construction, $58 million for real estate. A finance program could be carried out by utilization of current funds and bond issues within the present bonded debt limit supported by a county-wide vehicle or property tax.

No estimates have been developed for the suggested routes outside the city. They can probably be provided at a fraction of the cost of the inner routes.

The cost of protecting the $3 billion in city property will be completely justified by increase in property values and savings in vehicle operation that will result.

Wisconsin's State Highway Commission last week announced that $6 million will be spent on Milwaukee city and county projects. The largest item of this sum being $1 million for structures and grading for the East-West Expressway.



"Cruising Down the River" in Minnesota as . . .

Four houses are moved by barge

The turbulent Mississippi, whose floods bring nothing but grief, served last month as an avenue of escape for four property owners in Lily Dale, a suburb of St. Paul, Minn.

The four owners, tired of having their houses buffeted about by the recurrent spring floods each year, sent their homes "cruising down the river" for about five miles to new locations on high ground.

Movement of the four homes was a joint project of H. W. Prodger, St. Paul house mover, and the Twin City Barge and Towing Co., headed by Gordon Miller.

House-moving is no new art for Prodger, but shipment of the four homes by barge isn't exactly an ordinary undertaking, even though he did it once before, about a dozen years ago.

• **How it was done**—Prodger's crew of four men spent about three weeks lifting the four houses off their foundations. Then they built a ramp 26 ft wide and 80 ft long.

Prodger used pneumatic tires on dollies, 112 wheels under each building to move the first two houses onto the barge—each shipment made up of two homes. However, he discovered pneumatic tires don't operate as well on timber as do steel dollies, which he used for the second pair of buildings.

Once the two houses were secured to the barge—the owners and their families remained in them—the barge line brought in its 250-hp towboat, Tom Thumb, to take the load down river to the outskirts of St. Paul.

Building another ramp, Prodger removed the first two houses and returned for the remaining pair.

• **Costs**—Prodger said his charge for moving was about $1,000 for each house, plus about $200 for barge charges.

The four owners each flood year had suffered $500 to $1,500 damages per house.

Next spring, even if the Mississippi should flood its banks, the four families expect to be left high and dry in their new location.

The frame houses moved were: a seven-room, a six-room and two four-room homes. Their weight was estimated at 30 to 35 tons each, according to Prodger.

Prodger now has several others in Lily Dale who are considering making similar "cruises down the river" with their homes.

Public works department reorganized in Chicago

Reorganization of the public works department in Chicago has been approved by the city council, by adoption of 12 ordinances to legalize the new setup. Streamlining of the operations is expected to place them on a more businesslike basis and to save the city money.

The new alignment, which goes into effect Jan. 1, 1953—

Combines the Department of Subways and Superhighways with the Department of Public Works, with Virgil E. Gunlock, former commissioner of subways and superhighways, heading it as Commissioner of Public Works;

Creates a new Department of Water and Sewers, headed by James W. Jardine, who now is public vehicle commissioner;

Establishes a new bureau of engineering in the Department of Public Works to design and construct all major projects; Gunlock told the city council that engineers were hard to get and that this setup would give the city the best use of the engineers that it has;

Changes the name of the Department of Street and Electricity to the Department of Streets and Sanitation, with Lloyd M. Johnson remaining as its head;

Establishes a new Bureau of Parking in the Department of Streets and Sanitation which will maintain and supervise municipally-owned parking facilities.

Noxious odor fills valley, is traced to pipeline test

An obnoxious odor that filled the Mahopac Valley near Peekskill, N. Y., on election eve has been traced to an odorant, which was used in the testing of a gas line, police officials reported last week.

Williams Testing Co., Shreveport, La., was hydrostatically testing a line installed by Algonquin Gas Transmission Co. The line is the latest of three natural gas pipelines running into New England.

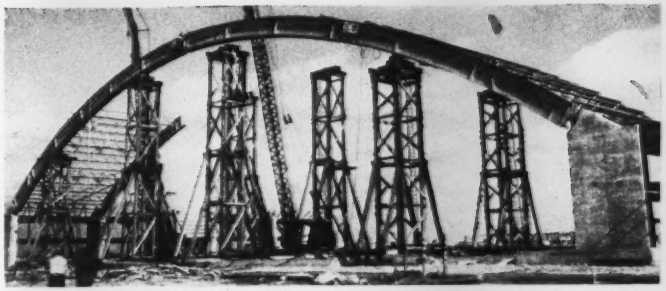
Eight days of search for a break that had been causing pressure losses on a four-mile stretch between Somers, N. Y. and Lincolndale, N. Y., had ended in failure.

The Williams Co. then decided to test the line by using an illuminating gas odorant, which found the break and settled into the valley. The odor was so strong residents notified state police.

Police asked the N. Y. C. Department of Water Supply, Gas & Electricity to test it in its laboratories. Police said chemists found that a very small amount of this gas could pollute a large volume of water and that the odor was almost inseparable from the water it polluted. No one ventured an opinion, however, as to how much of the odorant would constitute a real water supply danger.

• **New York City enters case**—The state police had notified John H. Kelley, district engineer of DWSG&E, because the area of pollution is in the heart of the city's watershed area.

Commissioner Dominick F. Papuano of New York City's Water Department wrote to Algonquin instructing that company the department must be warned of any future tests. He pointed out also that the odorant used is said to be highly volatile and inflammable.



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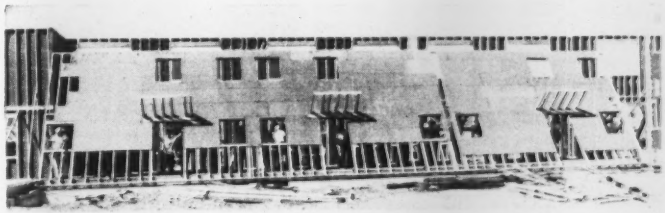

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Dallas takes more steps to alleviate water lack

The Dallas, Tex., city council last week let contracts for three deep wells to be sunk to the Trinity Sands in an effort to alleviate the city's critical water shortage (ENR Nov 13, p. 54).

The wells are expected to produce 9 mgd—about an eighth of the city's normal consumption.

Dallas went into action to boost its water sources after a recent Army Engineer report showed that only four month's supply remained in Lake Dallas, the city's sole basin on the Elm Fork of the Trinity River.

Well drilling contracts went to Texas Water Wells, Inc., at $100,800; the Layne Texas Co. at $106,400; and J. L. Myers & Sons at $102,000. Two of the contracts call for completion in 100 days, and the third in 110 days. All will be drilled near the Trinity River course.

• **Cloud seeding**—The council also approved a contract with Irving P. Krick (ENR Jan. 20, 1949, p. 57) of Denver, whose Water Resources Development Corp. will try to increase rains in the Trinity watershed by cloud seeding. The city will pay the cloud-seeding company $5,500 a month for six months, plus $3,500 the first month to cover equipment and supplies.

Meanwhile plans go ahead to dam up the junction of the Elm Fork and West Fork branches of the Trinity in order to back up West Fork flow to the city's Bachman treating plant on Elm Fork.

Problems of purifying the West Fork flow, which includes sewage from Fort Worth and Grand Prairie, are being studied. The council has yet to give approval to the projects. Cooperation evidently is necessary to pond off stockyard wastes in Fort Worth during dry spells. Large quantities of ammonia have been found in the West Fork water coming from Fort Worth.

In another water shortage prevention move, the city under the direction of Water Superintendent Karl Hoefle will start tapping White Rock Lake in about a week. This will add 8 mgd to the city's dwindling water supply.

Test showed the water is relatively pure as it comes from the lake, but chlorine will be added.

From previous efforts, the city is getting 5.4 mgd from 13 wells and 4.7 mgd from Bachman Lake and Willow Lake near Carrollton to add to the water supply.

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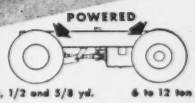

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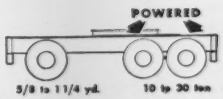

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Joint venture bids low on $4-million sewage job

The city of Sacramento, Calif., received a low bid of $4 million for the construction of a 54mgd primary sewage treatment plant. Bids were opened Oct. 30.

There were 12 bids on various phases of the job. Stolte, Inc., of Oakland and Fred J. Early Construction Co., of San Francisco, a joint venture, offered a low bid of $3.6 million for the erection of the main plant and the Stockton Construction Co. of Stockton, Calif., submitted a bid of $712,000 for the installation of connecting lines. The city had reserved the right to accept bids on the best combination. City Engineer E. A. Fairbairn's estimate for the work was $50,000 greater than the combined low bid.

The sewage plant is designed to take care of the Sacramento metropolitan area needs for the next 20 years. It is scheduled to be ready to go into operation in Aug. 1954.

Included in the plant will be a headwork structure, five sedimentation units, a sludge-pump building, five digestion tanks, digestion central building, elutriation tanks, filter building, office and laboratory, garage and machine shop, effluent pumping structure and chlorination unit.

In addition to the city of Sacramento, five other public agencies will use the facilities. At present raw sewage is being dumped into the Sacramento River and the State Health Department has warned the city that it must stop.

Voters of Sacramento approved a $4.4-million bond issue for construction of the plant.

Contract plans and specifications were drawn by Clyde C. Kennedy, San Francisco, engineer.

Shopping center

A giant shopping center, estimated to cost between $25-$35 million, will be built on the outskirts of Wilmington, Del.

The project will be known as the "Five States Wonder Mile." It includes: Sixty-eight stores along a 4,900-ft strip; at least four department stores among these units with floor space ranging from 36,000 to 150,000 sq ft; a 136-room hotel; parking space for 6,500 automobiles.

The shopping center it is expected will draw trade from five states near Wilmington.

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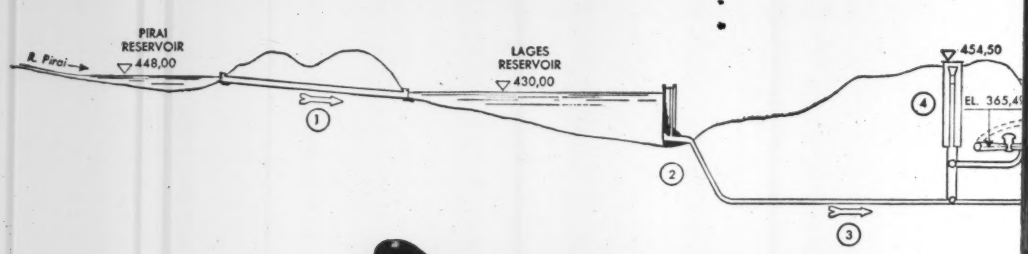

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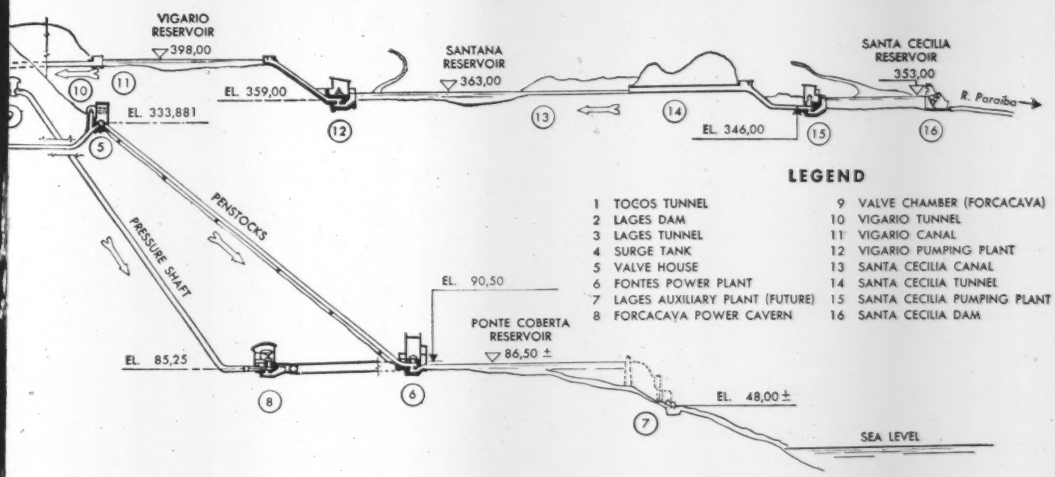
Schematic profile of the hydro-electric developments on the Paraiba, Pirai and Lages Rivers showing Forcacava Valve Chamber and Fontes and Forcacava Power Stations.



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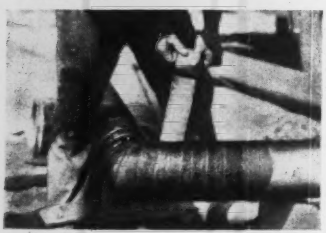

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European sanitary engineers call for greater cooperation among specialists

The need for greater cooperation between engineers and other specialists who make up the team of public health workers, was one of the factors stressed at the Third Seminar for European Sanitary Engineers, held from Oct. 27 to Nov. 1 at the Institution of Civil Engineers, London.

More than 70 participants from 18 European countries, comprising sanitary engineers, chemists, health officers, bacteriologists, soil scientists, biologists and others, heard Dr. J. A. Scott, Chief Medical Officer of Health, London County Council, define the nature of this cooperation in the field of sanitation. It was the medical officer's task, he said, to establish the minimum standards of hygiene which would ensure the health of the community through the harmless disposal of infective and dangerous organisms, while the other specialists should find the methods to achieve this and to provide practical solutions to each problem as it arises, within the financial means of the community.

The general theme for the seminar was small sewage treatment works. One of the problems referred to by Harold Macmillan, British Minister of Housing and Local Government, in his opening address to the seminar, was the need to provide so far as possible the same standards of sanitation for rural communities as exist for advanced urban areas. A solution of this problem, he said, would help to stop the drift from the land which constitutes a serious social problem in the United Kingdom. Sanitary engineers have taken up this challenge and developed minor sewage treatment works for small groups of houses. Research continues to perfect the design of such works.

M.F.B. Sentenac, director-general of the technical services of the Prefecture of the Seine, Paris, raised the problem of large scattered populations such as are to be found in rural France. The seminar reached the conclusion that "group sanitation" was always to be preferred to individual plants for each house, because the former method was more economical and more efficient, particularly from the point of view of operation and maintenance. It was felt that small works providing tank and possibly filter treatment represented a justifiable compromise between the individual tanks serving one property and a main sewage system which, for small or scattered communities, was often prohibitive in cost.

The delegates visited the new sewage treatment works at Maple Lodge, Colne Valley (ENR, Oct. 2, p. 52). In operation for less than a year, this is one of the most modern sewage disposal works in Europe.

Earlier seminars for European sanitary engineers, held at The Hague and in Rome, have roused widespread interest in other parts of the world.

• **Baity attends**—Prof. H. G. Baity, director, Division of Environmental Sanitation, World Health Organization (on leave from the University of North Carolina), attended the greater part of the seminar before leaving for Buenos Aires, and the Inter-American Association of Sanitary Engineering conference. Still another meeting of sanitary engineers and allied experts from the Eastern Mediterranean Region of WHO is planned for Pakistan early in 1954.

The seminar which was sponsored jointly by the World Health Organization, The Rockefeller Foundation, and the British government, was presided over by G. M. McNaughton, chief engineer, Ministry of Housing and Local Government. A ten-member advisory panel was selected to continue the work and absorb the members of the previous 6-member Ad Hoc Committee which had carried on the coordination between seminars.

At the closing session it was decided to hold the fourth Seminar for European Sanitary Engineers in the spring of 1954.

All-water route planned Atlantic to Black Sea

A $250-million project that is expected to provide an all-water route from the North Atlantic to the Black Sea is now under study by the International Bank for Reconstruction and Development. Pushed by a group of Austrian industrialists, the plan would involve construction of a canal linking the Danube and Main rivers. The bank has been asked to lend 45% of the capital necessary to complete the project.

("International continued on p. 56)

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Permanent staff planned for Pan-American roads

Plans for a permanent secretariat for the Pan-American Highway Congress were approved at a special meeting of the congress held in Mexico City Oct. 24-Nov. 2. Also approved was a program for financing the work of completing the Pan-American Highway and improving sections of the highway.

Lack of continuity in the work of the congress between its big meetings has been one of its major weaknesses. Resolutions were adopted, although there was no agency to press for action, on those resolutions by the countries most directly concerned. Nor was there any continuing study of subjects that should be brought forward for action by the congress.

At the Mexico City meeting a temporary executive committee was appointed to serve as the central organization until the next meeting of the Pan-American Congress which is set for Caracas, Venezuela, in 1954. On this committee are representatives from Argentina, Brazil, Mexico, Peru and the United States.

Secretarial services are to be provided by the Organization of American States.

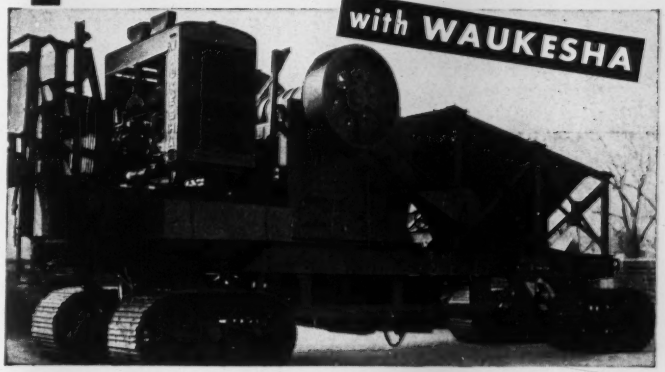
Within the proposed permanent set-up are continuing committees on organization, highway recommendations, finance and coordination.

• **Highway financing plan**—Under the financing plan approved by the congress, governments of the countries in which the work is to be done would issue bonds to cover the cost, which would be supported by specified taxes or other income. These bonds then would be delivered to the International Bank for Reconstruction and Development as security for its own bonds in like amount to cover a loan to the country doing the work.

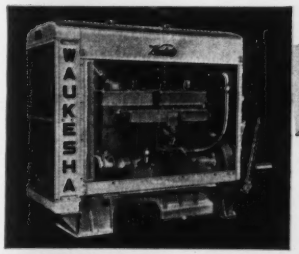
It is believed that these bonds can be sold in world markets much more easily than could the bonds of the individual countries. This plan, it is understood, has not yet been approved by the International Bank for Reconstruction and Development.

• **Honored by ARBA**—At the closing session of the congress the American Road Builders Association presented a plaque to Romulo O'Farrill, president of the Associacion Mexicana de Caminos and a director of the International Road Federation, in recognition of his leadership in highway development in Latin American countries. Eugene Reybold, vice president of the association, made the award.

Pioneer packs in power with WAUKESHA



for U.S. ARMY rock plants



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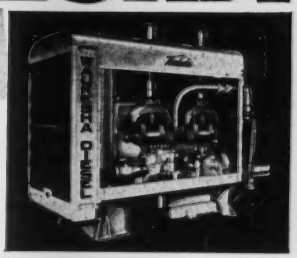
WAUKESHA Super-Duty Six Gasoline Unit (6-WAKU) — 6-cyl., 6¼-in. bore x 6½-in. stroke, 1197 cu. in. displacement powers the plant shown. Get Bulletin 1555.

WAUKESHA

Diesel



WAUKESHA Super-Duty Six DIESEL Unit (6-WAKDU) — 6-cyl., 6¼-in. bore x 6½-in. stroke, 1197 cu. in. displacement. Get Bulletin 1418.

The U. S. ARMY uses portable rock crushing, screening, and washing plants to produce aggregate for air bases, roads, and concrete structures. Shown is a 56-A Primary Crushing Unit, typical of these plants, which Pioneer Engineering Works of Minneapolis, Minnesota, build to U. S. Army Engineers' Specifications with a Waukesha Super-Duty Six Power Unit to drive the crusher, feeders and conveyor. Capacity is 300 to 400 tons per hour with crusher set at 6-inch discharge.

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Mexico opens Obregon hydro project

The Mexican Government has started operation of a new $17-million hydroelectric station in the northwestern state of Sonora.

The new plant, under construction for five years, is to be known as Alvaro Obregon Dam, for a former president of the country. Mexican engineers claim it is one of the largest two dams in Latin America, with a capacity of 3,000 million cubic meters and provisions to install generating equipment for annual production of 96 million KWH.

The installation will ease a critical power shortage in the area, and provide irrigation for some 73,500 square kilometers of Yaqui Valley cotton and vegetable producing land. A main canal 124 kilometers long will feed irrigation works.

The dam is an earthfill structure 1,457 meters long and 97 meters high from the foundation, or 60 meters above water level. It is 10 meters wide at the crown of the curtain wall and 360 meters wide at the base. Construction of the curtain wall alone involved the movement of 8,590,000 cubic meters of earth, which is the largest volume ever placed in a single dam in Mexico and, engineers believe, the largest in Latin America also.

Storage capacity of the dam will be 2.4 million acre-feet of water of which enginers count on 2 million for irrigation and power generation and 400,000 for removal of sediment. The artificial lake, already formed in part, will have a surface area of 76,000 acres.

Included in construction is a concrete spillway, of the free flow type, which will have a discharge of 11,000 cubic meters per second with a flow of 6.70 meters high over the 315-ft length of the spillway.

For power generation, an upper intake located on the right bank consists of three concrete-lined tunnels six meters in dia and some 500 meters in length. It is equipped with butterfly emergency valves and jet cone service valves of 2.54 meters in diameter, which are said to be the largest in the world.

The main distribution canal cost $17 million in addition to the cost of the dam itself, financed by a loan from the U. S. Export-Import Bank. With a capacity of 110 cubic meters per second, the main canal is lined part of the way with concrete to prevent loss of water. A number of siphons and other works were constructed in connection with the canal.

In inaugurating Obregon Dam, the Mexican Minister of Hydraulic Resources noted that 43 major irrigation projects have been completed in Mexico during the last six years. Eighteen other projects are still in construction including Falcon Dam on the Rio Grande and Presidente Miguel Aleman Dam of the Papaloapan project in Vera Cruz state (ENR Oct. 9, '52, p. 34). The latter, when completed next year, will be the largest dam in Latin America. Another major project still under construction is the Miguel Hidalgo Dam, on the Rio Fuerte, for irrigation of 670,000 acres.

During the last six years the following important projects were completed in Mexico:

Morelos Dam, on the Colorado River, irrigating 500,000 acres.

Madero Dam, in Chihuahua state, irrigating 80,000 acres.

Solis Dam, in Guanajuato, for 340,000 acres.

Vallsequillo canals, in Puebla, for 70,000 acres.

Sanalona Dam, in Sinaloa state, irrigating 240,000 acres.

Guasave canal readaptation, in Sinaloa, for 75,000 acres.

Marte Gomez canals added to that dam, for 180,000 acres.

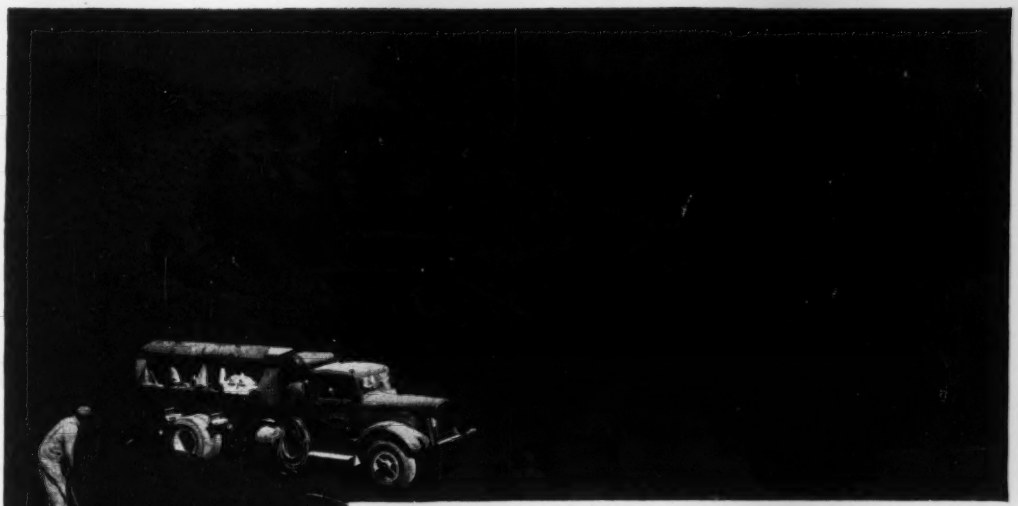
Anzalduas canal system, for 550,000 acres.

Technical research service is offered

A new, complete technical research service is being offered British Columbia industry. It will be provided by British Columbia Research Council through the new Division of Technical Services, headed by D. S. Smith, assistant director of the B. C. Council. The division will combine the technical information service of the National Research Council with that operated at present by the British Columbia Council.

In the new agency, staffs of both councils will be available to provide scientific assistance on technical problems for industry. The service will be free, and where answers cannot be provided from existing knowledge, the team of experts will assist in planning research investigations.

A program of visits to industrial plants will be an important feature of Smith's work. In making these contacts he will work with the field representatives of the British Columbia Provincial Department of Trade and Industry.



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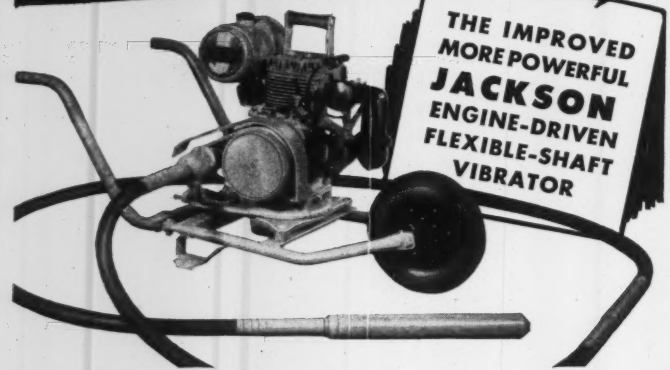

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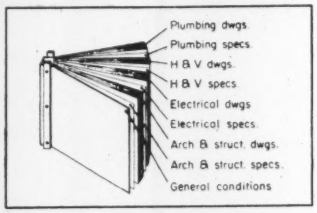

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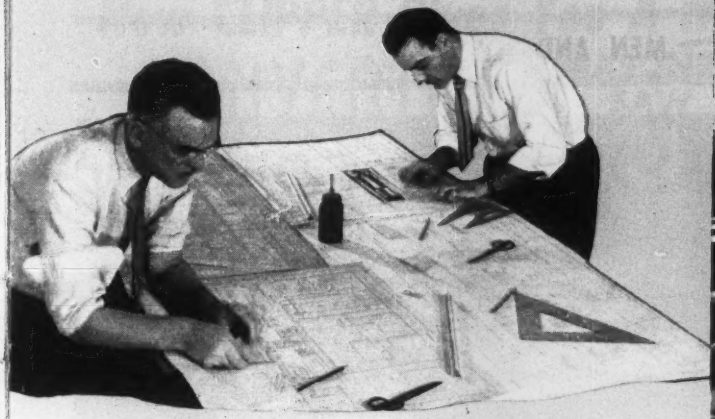

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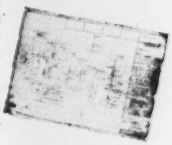

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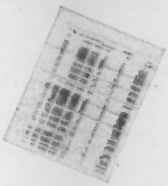

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THOMAS CARR FORREST, JR., consultant on water and reclamation projects is nominated as president of the National Society of Professional Engineers.

Texas engineer nominated NSPE head

When Dallas, Tex., recently found itself faced with a desperate water shortage, the city turned, almost with a reflex action, to get the advice of a hard-working, soft-spoken engineer named Thomas Carr Forrest, Jr. (ENR Nov. 6, p. 51).

At one time in his crowded career, he had drawn up a complete water plan for the city—from source development to sewage treatment—and his experience was needed in a hurry.

Last week, one of engineering's highest honors was virtually assured for Carr Forrest.

Wallace M. Driskell, Jr., of Austin, executive secretary of the Texas Society of Professional Engineers, nominated him for the presidency of the National Society of Professional Engineers. Forrest at present is vice-president of the national society.

• **Believes in broad education**—If Forrest becomes NSPE head next June, the 28,000-member society will be led by a man intensely aware of engineering needs today. He is especially interested in the problem of training engineers for a more rounded view of their communities and responsibilities as citizens and leaders.

"There's no getting around it," he says. "Engineers are running this country. We are living in an engineering age, and the public is starting to realize it."

As a result, Forrest believes engineering colleges should offer more courses in economics and the humanities. He calls for a five-year college

(*Continued on page 67*)

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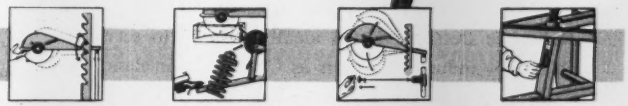

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program in which junior colleges would weed out the "poor risks." If engineering minds are going to run this country, he reasons, they must be trained beyond mere technicalities.

And he also believes there is plenty of room for improvement in engineering techniques, especially where an engineer can save his client money.

In his own specialty—water—Forrest calls for more regional and watershed cooperation among cities competing for water supplies. He hopes small towns will band together to form water districts, rather than to overpumping underground water supplies.

• **Early training**—The man with these ideas—and he is a persuasive advocate of them—was born 56 years ago in Forreston, a small town between Dallas and Waco.

In the summers while he was going through high school, Forrest worked for the Waxahachie city engineer, J. D. Kirven, who today is a prominent earth-moving contractor.

Upon graduation from high school, Forrest entered Trinity University, Waxahachie, for a year, then went back to work for Kirven as inspector of the city's first sewage treatment plant. Forrest then returned to college for a year—this time at Texas A. & M. World War I interrupted his career for a year.

Then came an important move: Kirven, who had become chief engineer for Trinity Farms Co., a firm reclaiming 55,000 acres of Trinity River Valley land, hired his protege.

Under the direction of Kirven and the company's vice-president, T. H. Harbin, Forrest was soon deep in reclamation and drainage work on the Trinity—and he has been at it ever since.

Two years later, when Trinity Farms changed its set-up, the engineering department was wiped out and Forrest was out of a job.

But this was not for long. He had experience in the limited field at a time when demand for water control and reclamation work was booming. His first client was Ellis County Drainage District No. 1, and five years later he was working with about 20 levee districts.

The lure that drew Forrest to Dallas eventually was a partnership in the firm of E. L. Myers and E. W. Noves, prominent municipal engineers. Forrest went to work on a vast project—construction of the $6.5-million Dallas levee system. He was spreading out, too, from strictly reclamation work and was engaging in water supply, distribution and treatment.

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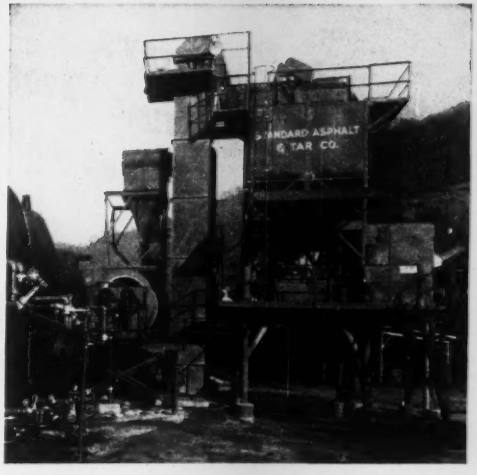

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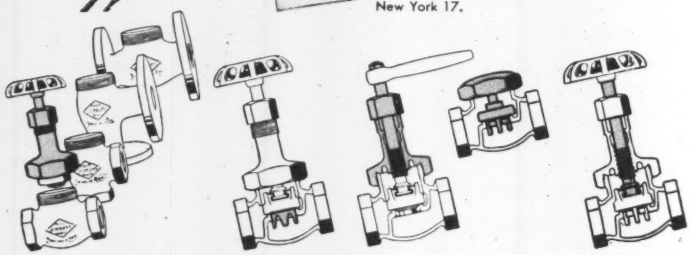

Fig. 106-A "Family" Interchangeability meets 90% of your valve needs with a small inventory of parts. Start with the standard Fig. 106-A. Trimming is interchangeable in Globe or Angle body, screwed or flanged. With a few parts, quickly-assembled combinations provide a Lift Check, a Spring-loaded Check, and valves for Stop and Check, Quick-opening, or Throttling service.

Through the years, Forrest helped with the water problems of many Texas cities. He has branched out from his native section of Texas and today is consulting engineer with the Sabine, Guadalupe-Blanco, and Upper Colorado River authorities.

• **Accomplishments**—The following are his main projects during the past fifteen years.

• The Texas Centennial Exposition. Starting in 1935, Forrest worked steadily for 13 months as consulting engineer for the exposition. He planned underground utilities, paving, street construction, drainage and even demolition of structures on the site.

• The New York World's Fair. As a result of his centennial work, Forrest was called to New York to help with that city's extravaganza.

• World War II military construction. Forrest designed and supervised construction engineering phases of Camp Wolters, Mineral Wells; Camp Howze, Gainesville, and Camp Maxey, Paris. All of these multi-million-dollar projects included facilities for 40,000 men. They required paving, sewerage, water systems, etc.

• Airports. Forrest made studies on Love Field and Redbird Airport in Dallas, and planned construction phases of airfields in Greenville, Paris and Gainesville.

• Trinity Industrial District. The firm of Forrest & Cotton is consulting engineer for this booming industrial district that eventually will cover 700 acres near the heart of Dallas. Forrest has supervised drainage, water supply, utility planning and a successful plan of depressing streets and railroad tracks so that factory floors are on grade with the beds of trucks and railway cars (ENR Oct. 23, p. 47).

• Interceptor sewers. Forrest was retained by Dallas to plan the East Bank Interceptor Sewer, an 11-mi line that is one of the largest west of the Mississippi. Now he is designing the West Bank Interceptor Sewer that will give West Dallas modern drainage.

• West Dallas Housing Project. Forrest has been retained as consulting engineer for the $35-million housing project that will house 14,000 persons in 3,500 units.

Forrest's partner is James A. Cotton, a younger man who was active in the Trinity River dam building program before joining Forrest. Forrest & Cotton head a firm of 70 persons, including 35 engineers.

Finke resigns in sewerage squabble

Ralph W. Finke, who has been city engineer at Seattle for the past four and one-half years, submitted his resignation Nov. 17 to Mayor Allan Pomeroy, to take effect not later than Dec. 15. His term was due to expire Jan. 1, and Pomeroy, who took office June 1, had intimated the appointment would not be renewed.

Finke, who was appointed by Pomeroy's predecessor, has developed a proposed $25-million sewage disposal program which has been criticized as "inadequate" by Mayor Pomeroy. Although the first $650,000 unit of the program already is under construction, the entire program is still awaiting expected approval from the city council.

Finke's resignation clears the way for Pomeroy to appoint his own city engineer, subject to approval by a majority of the council. This appointment may set the stage for a knockdown, drag-out fight between the council and the mayor over the sewage disposal program, with the council unlikely to approve a candidate sharing the mayor's opinion.

Pomeroy contends that "complete" treatment of the city's sewage in a central plant is necessary to avoid pollution of Puget Sound; Finke's program called for comminution and dilution at several points.

David Levine, council president, and M. B. Mitchell, chairman of the council's Streets and Sewers Committee, indicated the council probably will withhold action on the sewage disposal program until after a new city engineer has been appointed. Mitchell expressed regret at Finke's resignation.

• **Breaking point**—Mayor Pomeroy brought the sewage disposal controversy to a head Oct. 14 in a sharply-worded letter to Finke.

"I have always been in favor of proper pollution abatement for the city," Pomeroy declared, "but your department's report outlining a program does not satisfy my contention that further comparison studies should be made as to the city's policy for location of sewage treatment plant sites and sewer outfalls as well as the type of treatment that should be provided." Finke had asked the mayor and city council to endorse the $25-million, ten-year sewerage construction program.

Pomeroy's immediate quarrel with the program is over its location of the

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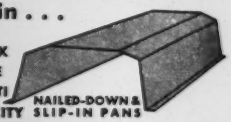

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"I am convinced that further study would indicate other sites more appropriate," Pomeroy wrote to Finke.

Pomeroy further charges that "previous correspondence and records of conferences between the city and the State Pollution Control Commission, as well as publications by that body, have clearly indicated a definite policy on the part of your department of not desiring to provide adequate sewage treatment." He called the proposed sewage treatment "experimental," considered unsuccessful in other areas and declared it would "result in an eventual added expense to the city."

The mayor asked Finke to estimate the cost of primary sewage treatment in Seattle.

Robert R. Hubbard, principal engineer in charge of all construction work for the Seattle Municipal Engineering Dept. has been appointed acting city engineer for the month of December.

He will fill the month's gap between the resignation of City Engineer Ralph W. Finke, effective Dec. 1, and a new city engineer, yet to be appointed, whose four-year term normally will begin Jan. 1. There has been some speculation that Hubbard might be offered the permanent post.

Aid to Chief of Engineers retires after long service

After a half century in the Army Corps of Engineers, W. H. McAlpine has retired as special assistant to the Chief of Engineers at Washington. He is an authority on construction of dams, reservoirs and levees.

McAlpine was graduated from Massachusetts Institute of Technology in 1896. He was assigned to the Louisville District Engineer's Office in 1912 and had charge of construction and reconstruction of dams on the Kentucky River. He was largely responsible for design and construction of the system of navigation dams on the Ohio River, completed in 1929. During World War I he was Louisville District Engineer.

Lt. Gen. Lewis A. Pick, former Chief of Engineers, said of McAlpine, "I know of no employee in the Corps who has had a more distinguished career than Mr. McAlpine, nor of anyone who has made a greater contribution to our civil works program. He personally participated in the approval and design of nearly every major flood control structure in the country."

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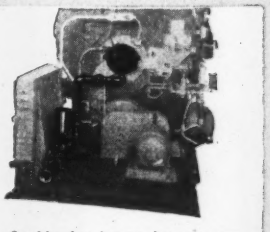

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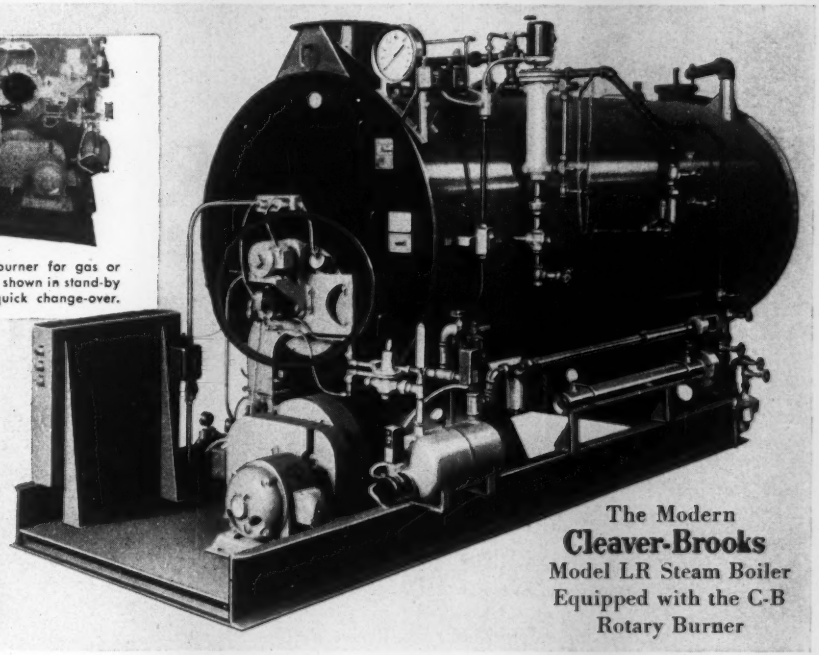

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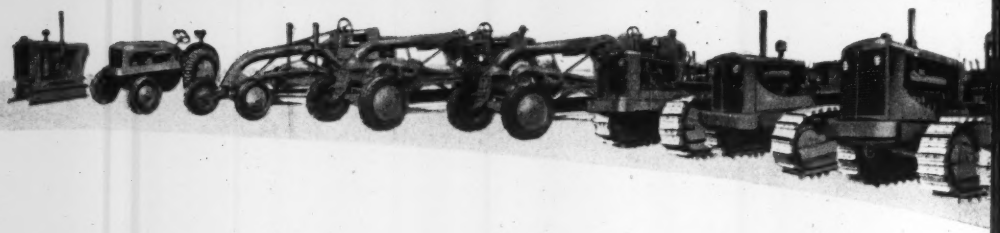

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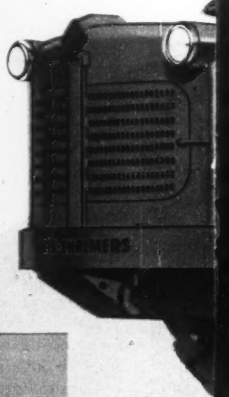

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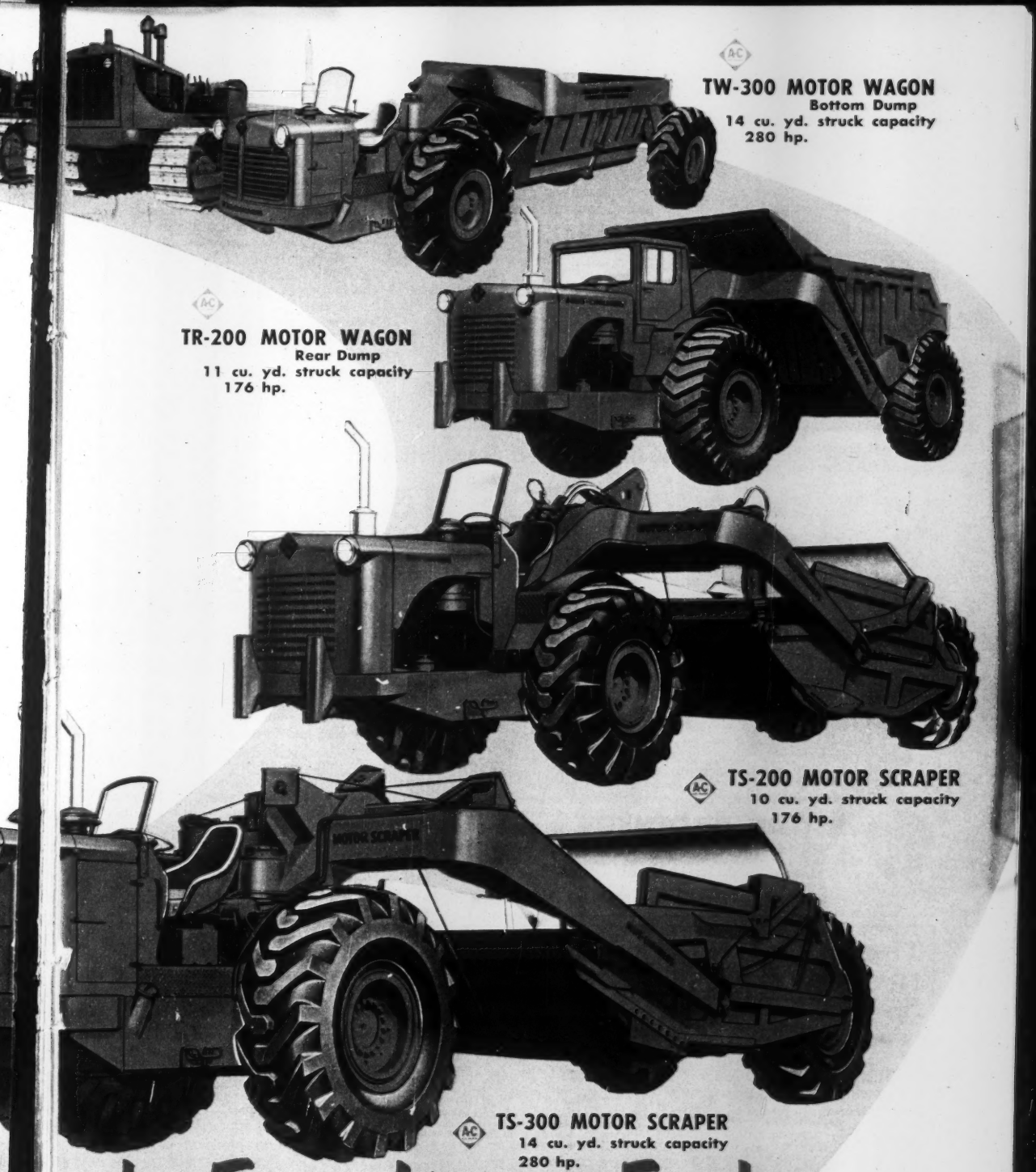

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OBITUARIES

Jacob L. Warner, 76, former executive of the E. I. du Pont de Nemours and Co. and an engineering consultant since his retirement in 1946, died Nov. 11 in Wilmington, Del. He was graduated from the University of Pennsylvania in 1899. He received his degree of civil engineering in 1902. He entered the engineering department of the DuPont Company in 1904. For many years, he was a plant engineer on location and visited practically every plant owned by the company. His work required extensive tours through all parts of the country, and also in Canada and Mexico.

John B. Robinson, 67, formerly general superintendent for the Panhandle Pipe Line Co., died in Cleveland, Ohio, Nov. 12.

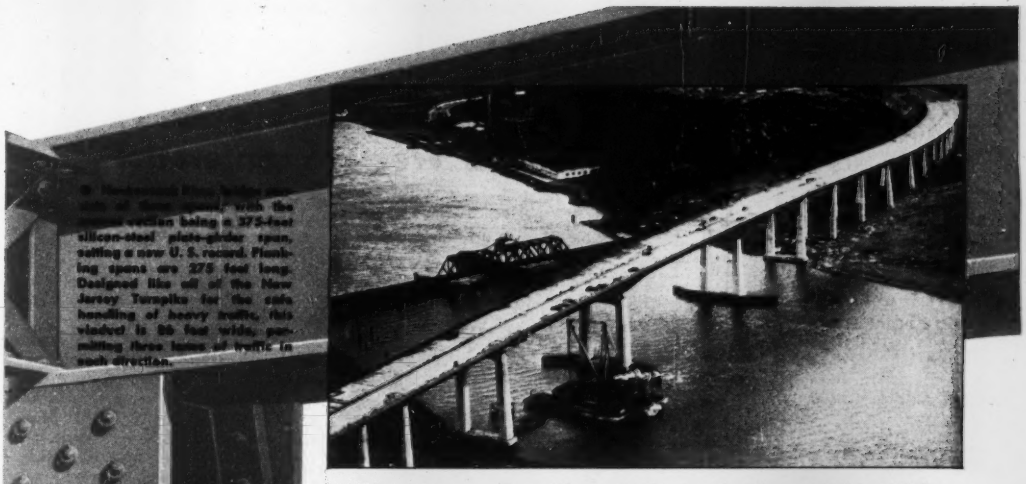
Richard P. Reed, 76, Wilmington, Del., builder, died Nov. 15. He was president of A. S. Reed & Brothers, which constructed such Wilmington landmarks as Wilmington High School, Trinity Church and the old Post Office. He was graduated from the University of Delaware.

George H. Thomas, 88, Dover, Del., building contractor for nearly 40 years died on Nov. 14.

Baxter L. Brown, 88, retired consulting engineer and former president of the St. Louis Board of Public Service, died Nov. 9. He was a vice president of the American Institute of Consulting Engineers, a director of the American Society of Civil Engineers, president of the St. Louis Institute of Consulting Engineers and president of the St. Louis Engineers' Club. He retired in 1941 after serving eight years as head of the Board of Public Service. He entered private practice in 1905 after five years as assistant chief engineer of the Missouri Pacific Railroad. He was joint engineer of the Chain of Rocks Bridge across the Mississippi River at St. Louis.

Raymond H. Mitchell, 53, division engineer for the Boston & Maine Railroad since 1945, died at Boston Nov. 18. He was a member of the Board of Registration for Professional Engineers in Massachusetts.

Augustus M. Turner, 75, Chicago contractor, died in Evanston, Ill., Nov. 15. He was president of A. M. Turner Co., which specializes in municipal and railroad construction work.



American Bridge Protects New Jersey Turnpike's Hackensack River Bridge With

PITTSBURGH'S NEW XLO STRUCTURAL - STEEL - PRIMER

XLO Steel Primer Gives You These 5 Important Advantages:

1. **Unexcelled wetting properties insure uniform protective coating of steel surface irregularities caused by mill scale.**
2. **Controlled and positive drying permits shipment of fabricated parts to the job site within 24 hours after priming, in all seasons of the year.**
3. **Standard shop practice for thorough cleaning of metal surfaces before priming may be followed without impractical or costly methods of surface preparation.**
4. **Provides optimum protection against metal corrosion during shipment and erection; also serves as the foundation coat for the field painting system.**
5. **In addition to meeting ASTM Specification D-234-48 and Federal Specification TT-O-369 covering Raw Linseed Oil, XLO Structural Steel Primer provides a plus in drying over specification requirements.**

● **One of the vital links** of the 118-mile New Jersey Turnpike is the $9,500,000 Hackensack River Bridge opened earlier this year. This important portion of the new toll highway which connects the New York metropolitan area with points south, is 5,623 feet long. Spans for this viaduct were fabricated and erected by the American Bridge Division, United States Steel Company.

● **Pittsburgh is proud** that its new XLO Structural Steel Primer was used to safeguard these record-size girders during transit and erection. This new kind of primer is derived from linseed oil, combined with red lead and iron oxide pigments to provide protection for all kinds of fabricated structural shapes during transit, erection and before application of field coats. It is also furnished with 100% red lead, if desired. A variety of IRONHIDE coatings are also available in a range of colors suitable for field coat application.

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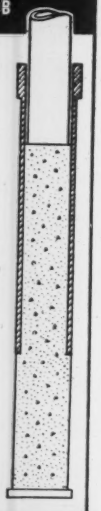

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MEETINGS

New prestressed concrete ideas discussed at Western conference

Prestressed concrete—rapidly coming of age—is still suffering some growing pains. That was the impression given the 275 attending the Western Conference on Prestressed Concrete held Nov. 14 and 15 at Los Angeles. That this method of construction has passed the novelty stage was shown by the number and variety of jobs described in conference papers. Much emphasis is given now to further research on specific details as well as to polishing specifications and code provisions.

The latter subject was analyzed in a panel discussion on specifications and building code provisions as applied to prestressed concrete. The panel was chairmaned by Sam Hobbs, Portland Cement Association, and included Prof. C. P. Siess, University of Illinois, Prof. T. Y. Lin, University of California, W. J. Jurkovich, California Bridge Department, and F. M. Andrus, Los Angeles County Building Department.

Siess discussed design specifications. He strongly urged standards of recommended practice as opposed to fixed specifications at this stage, to promote development rather than to hinder progress and improvement. Jurkovich discussed job specifications with particular reference to bridge construction. He advocated specifications that encourage competition in the various methods available and suitable for the work. Such specifications should make definite requirements of materials and performance.

The entire panel endorsed the idea that leading codes should provide for approval of alternate methods without specific fixed code provisions. Pending further development, such means of approval could be based on recommended practice, experience record and analysis for safety.

A survey of research covering some 200 universities and organizations was reported on by R. K. Steele of the Naval Civil Engineering Research and Evaluation Laboratory at Port Hueneme, Calif. Included among the widespread investigations are a study of transverse or eccentric loading on slender prestressed columns (University of California), a study of prestressed rigid frames (Illinois Tech), and glass-fiber wire and cable study (Princeton University).

Prof. R. E. Davis, University of California, detailed the means for selecting concrete materials that will produce uniformity and strength as well as reduce drying shrinkage and creep. He reviewed methods of placing to prevent segregation and water gain.

Practicability of continuous design was discussed by Jean Muller of Freyssinnet Co. He diagrammed the means for analysis to determine and combine the stresses due to simple beam action, continuity and prestressing, and outlined how cables should be located in continuous members.

Among the recent jobs described was the Barrett-Lick garage in San Francisco (ENR Nov. 13, p. 38) where use was made of heavy girders—twice the size of those in the Walnut Lane Bridge. Another building just getting to the stressing stage is a warehouse for the Long Beach, Calif., harbor department that includes 82 prestressed girders. J. R. Bole, structural engineer, presented cost data on a warehouse that showed a slightly higher cost for prestressed concrete girders than for unprotected steel truss or rolled-beam roof construction. The prestressed concrete provided additional fire-resistance and lower maintenance for the structure.

The conference was sponsored by the California Institute of Technology, University of Southern California, University of California, and the Naval Civil Engineering Research and Evaluation Laboratory. Proceedings will be available in February for $5.00 from Dept. of Conferences, University Extension, University of California, Los Angeles 24, Calif.

Conference on resources planned for next March

Plans for a national conference on conservation and development of national resources are being made by Resources for the Future, Inc., a nonprofit organization set up recently under auspices of the Ford Foundation. President-elect Dwight D. Eisenhower has expressed his willingness to call such a conference to be held some time in March.

President of Resources for the Future, Inc., is Horace M. Albright, president of United States Potash Co. Charles W. Eliot, planning consultant, is executive director.

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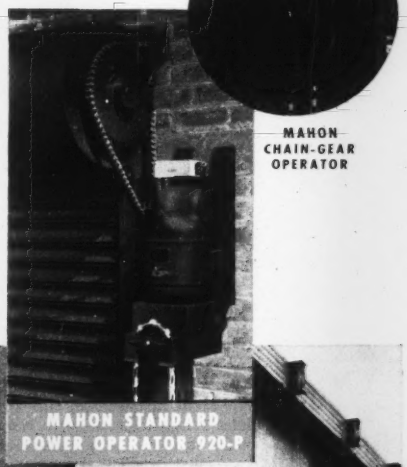

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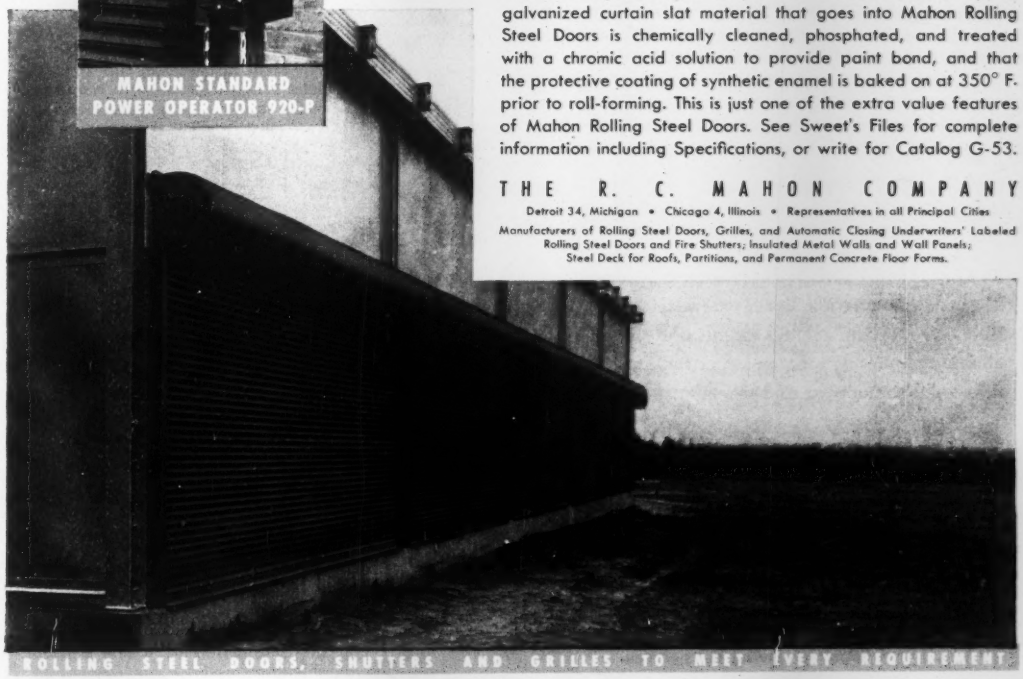

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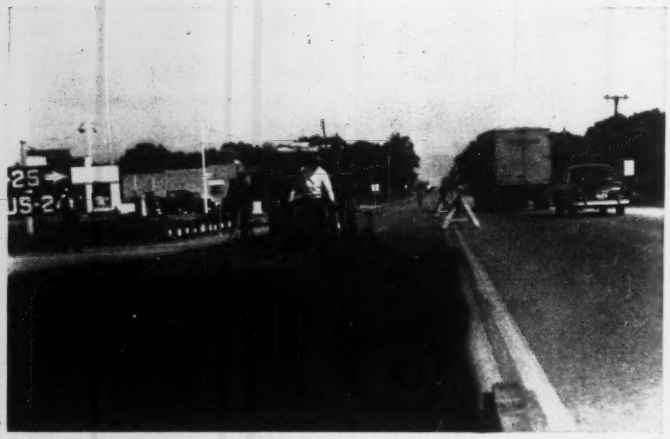

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Occupancy as constituting acceptance of work

Where the owner by reason of circumstances was forced to move into a house, such occupancy did not necessarily constitute a waiver of defects in the work.[1]

In this instance, action was brought by the owner against the contractor to recover damages for breach of contract and to restrain the contractor from collecting on a promissory note that had been given him in payment for the work.

The owner sought to stop payment on the note on the ground that the contractor had not properly performed the work for which the note was given.

The contractor claimed that the occupancy of the building by the owner constituted a waiver of the defects in the work.

The court held that the owner was forced by circumstances to occupy the house and that under such circumstances occupancy did not constitute a waiver of defective construction. The court held further that since the defects in the work were trivial and could easily be remedied, that there was substantial performance of the contract and that the contractor was entitled to recover the balance due under the contract less the cost that was incurred for remedying the defects.

(1) Beeson et ux. v Oden, 58 So. 2d 221, Court of Appeals of Louisiana, March 28, 1952.

Time of performance

A contract for construction of a coal-loading chute contained no provision as to time of performance. When the contractor delayed completion beyond what the owner thought proper, the owner attempted to terminate the contract, holding that he was perfectly within his rights to do so.

The court held, however, that the right to terminate such contract at will ordinarily applies to contracts for personal services and does not apply to a contract calling for a definite amount of work. In the latter case the general rule is that the contract must be performed within a reasonable time.[1]

(1) Stephens et al. v Horn, 236 S.W. 2d 953, Court of Appeals of Kentucky, Dec. 8, 1950.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

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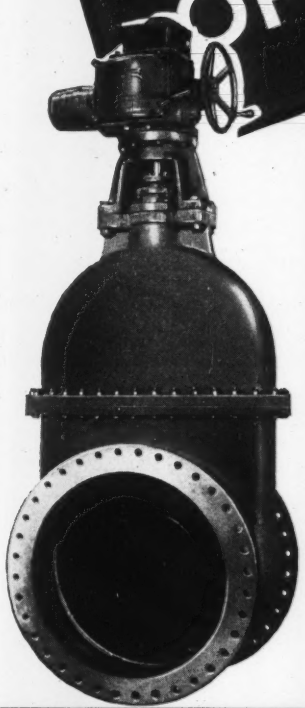

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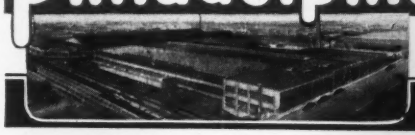

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Mass., Boston**—PIER—B.A. 12/17—Commonwealth of Mass., Port of Boston Auth., East Boston, Contr. 8, constr. Pier 1, $9,500,000. Plans deposit $100; refundable. Fay, Spofford & Thorndike, 11 Beacon St., Boston, engrs. CD 11/13.

Mass., Haverhill—SWIMMING POOL—Bids Asked—Young Men's Christian Assn., Winter St., swimming pool addn. $150,000.

BIDS ASKED—BUILDINGS

▲ **Mass., Dighton**—PLANT—B.A. 1/5—Arnold Hoffman & Co., Inc., 55 Canal St., Providence, R. I., plant addn. $1,000,000. Extended date. Jenks & Ballou, 2600 Industrial Trust Bldg., Providence, R. I., engrs. CD 11/13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John Bowen Co., Inc.**, 173 Boston St., Boston, Mass. CA. **$11,379,587.** Contr. 1-A P-H 8 chronic disease HOSPITAL and NURSES HOME, Forest Hills, BOSTON, MASS. State, Dpt. P. Health, State House, Boston, Mass. CD 9/16, under LB.

Rich Bros. Constr. Co., 410 Park Square Bldg., Boston, Mass., CA **$693,396.** Spaulding SCHOOL, NEWTON, MASS. City, Pub. Bldg. Comn. Office, Newton, Mass. CD 10/28, under LB.

Gil Wyner Co., Inc., 12 Newland St., Malden, Mass. LB **$319,800.** superstructure women's DINING HALL, South St., WALTHAM, MASS. Brandeis University, 415 South St., Waltham, Mass. Isidor Richmond & Carey Goldberg, 16 Arlington St., Boston, Mass., archts.

▲ **Harry Kay Assocs.**, Middletown, Conn. Owner Builds. **$4 000,000,** 204 HOMES, in 108 acres N.. Main St. west to Mountain Road, WEST HARTFORD, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau of Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, **The Lane Constr. Corp.**, 37 Colony St., Meriden, Conn., LB. **$7,096,781,** est. $8,585,000. 11.56 mi. thruway and 5.31 mi. acc. mi., New York State Thruway-Catskill Section-Sub 5 (Greene Co. line-Normanskill Creek); Selkirk Interchange; Stylebarrck Rd.; Beaver Dam Rd.; Clapper Rd.-Weisheit Rd.; Wample Rd.; Coeymans-Indian Fields Pt. 1 SH 1468, River S.H. 193; Glenmont-Feure Bush, S.H. 367; Albany-Bethlehem S.H. 5499, C.T. 52-8P, R.C., 52-111, S.T. 52-29 Albany Co.

Leon Reynolds, R.D. No. 1, Northville, N. Y., LB. **$271,916,** est. $288,000, 4.53 mi. Amsterdam-Hagaman S.H. 298, Manny Corners-Blue Corners, S.H. 1498 FARC 52-112, Montgomery Co.;

John J. Harvey Inc., 38 Campion Rd., Utica, N. Y., LB. **$387,274,** est. $419,200, City of Little Falls, Erie Canal Lock 17, M-52-2, Herkimer Co.;

Max Di Fiore & Son, Inc., 204 Edgeland St., Rochester, 9, N. Y., LB. **$73,884,** est. $83,000. 0.21 mi. Rochester City-Brooks Ave., FAC 5-215, Monroe Co.;

Depew Paving Co., Inc. & McLain Constr. Corp., 4955 Broadway, Depew, N. Y., LB. **$2,913,183,** est. $3,510,000, 2.14 thruway and 0.94 mi. N. Y. State Thruway-Ontario Section-Sub. 13 Union Rd.-Transit Rd.; Cayuga Rd., Youngs Rd. and 2 marginal roads, O.T. 52-17, S.T. 53-30, Erie Co. Bids Nov. 20. CD 10/28.

Frank Mascali & Sons, Inc., 210 St. and 31 Ave., College Point, N. Y. LB. **$108,730,** grading, curbing, flagging, constr. receiving basins and mails, b. conc. paving (permanent pavement) 71 Ave. from Kissena to Parson Blvds. and in Parson Blvd. from 65 to 71 Aves., FLUSHING, N. Y. President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens, 24, N. Y. Bids Nov. 14. CD 11/6.

Marcam Constr. Co., Inc., 2427 W. Third St., Brooklyn 23, N. Y., LB. **$381,077,** uncovering of all work performed under the abandoned Cont. No. 163628 for construction of combined sewer and appurtenances in 133 Ave. from 223 St. to Francis Lewis Blvd.; 224 St. from 133 Ave. to 131 Ave.; 225 St. from 133 to 131 Aves.; 131 Ave. from 225 to 226 Sts., and from 230 to 227 Sts.; 226 St. from 133 to 131 Aves.; 227 St. from 133 to 130 Aves.; 228 St. from 133 to 130 Aves.; 229 St. from 133 to 130 Aves.; 230 St. from 133 to 131 Aves.; 130 Ave. from Francis Lewis Blvd. to 227 St., NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens, 24, N. Y. Bids Nov. 13. CD 11/6.

▲† **Malan Plumbing Co., Inc.**, 25-09 42 Rd., Long Island City, N. Y. LB. **$1,413,000,** ground electronics storage and overall facilities, Griffiss Air Force Base, Eng. 30-075-53-127, ROME, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Nov. 18. CD 10/16.

▲ **NEW JERSEY**—N. J. Hy. Auth., State Office Bldg., 1035 Parkway Ave., Trenton,

Frederick Snare Corp., 233 Broadway, New York, N. Y., CA, **$2,445,635,** river piers for Raritan River bridge on Garden State Parkway (Contract 5) Woodbridge Twp. and Sayreville, Middlesex Co. Bids Nov. 6, awarded Nov. 20. CD 11/11, under LB.

▲† **Ole Hansen & Sons, Inc.**, Pleasantville, N. J., LB, **$1,369,928,** airfield pavements, Naval Air Station, NOY 70170, Spec. 31805, ATLANTIC CITY, N. J. Dpt. Navy, Phila. Naval Base, Phila., Pa. Bids Oct. 30.

▲† **Daniel J. Cronin, Inc.**, 717 S. Orange Ave., Newark, N. J. LB, **$1,644,000,** extension to altitude exhauster wing at Naval Air Turbine Test Station, West Trenton, TRENTON, N. J. Officer in Charge of Construction, Dist. P. Wks. Office, Navy Yard, Phila., Pa. Bids Nov. 6. CD 10/20, under Public Buildings.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,

George M. Brewster & Son, Inc., 275 W. Fort Lee Rd., Bogota, N. J., CA, **$1,680,930,** structures, grading, drainage, paving 1.72 mi. Sect. 32 A, 1st section of Delaware River exten. from King of Prussia to Delaware River, Montgomery Co. Bids Oct. 30, awarded Nov. 14. CD 11/3, under LB.

▲ **James N. Driscoll Co., Inc.**, 1121 Frankford Ave., Phila., Pa., LB, **$3,417,435,** interceptor sewer, Lower Delaware Collecting System, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Nov. 17. CD 10/20.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore,

McLean Contg. Co., 1301 Fidelity Bldg., Baltimore, Md. LB. **$482,030** slag, **$481,957** stone, constr. 2 dual multiple span steel beam bridges to carry Annapolis By-Pass over Admiral Dr. and cowhide branch, adjacent road work. Contr. 263-21-515, Anne Arundel Co. Bids Dec. 2. CD 11/12.

† **J. H. Lawrence Co.**, 2600 Huntington Ave., Baltimore, Md., LB. **$358,864.** steam distr. sys. addn., Eng. 18-020-53-24, EDGEWOOD, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. Bids Nov. 18. CD 10/22.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Webb & Knapp, Inc.**, 270 Park Ave., New York 17, N. Y. Owner Builds. **$12,000,000.** 18 story OFFICE, STORE and SHOWROOM BLDG. 110 W. 34 St., NEW YORK, N. Y. Kahn & Jacobs, 2 Park Ave., New York 16, N. Y., and Rudolph C. P. Boeller, c/o owner, archts.

▲ **Webb & Knapp, Inc.**, 270 Park Ave., New York 17, N. Y. abandoned project, for 4 story OFFICE, on block between 6 and 7 Ave. running from 34 to 33 Sts. NEW YORK, N. Y. Est. **$5,000,000.** CD 7/18/51 under CA.

▲† **Carl Buhr, Inc.**, Grand Central Terminal Bldg., New York 17, N. Y., CA, **$1,453,768,** 200x1200 ft WAREHOUSE, Raritan Arsenal, RARITAN, N. J. U. S. Eng., 80 Lafayette St., New York, 13, N. Y. Bids Oct. 22. CD 9/24.

▲ **Welsh Grant Corp.**, St. Davids Rd., Phila., Pa., Separate Contracts. **$2,000,000.** RESIDENTIAL DEVELOPMENT, Krewstown Rd., PHILA., PA.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila. Pa., LB **$4,936,000.** Wilson Park Low Rent HOUSING, PHILA., PA. Housing Auth., 42 S. 15 St., Phila. Pa., Louis Doane, Penna R. R. Bldg., Wilmington, Del. engr. Bids Nov. 13. CD 10/14.

† **Wm. T. Lyons Co.**, 1700 Friendship St., Baltimore, Md. CA. **$631,980.** low temperature test chamber LABORATORY OFFICES, REPAIR SHOP, outside utilities, Eng. 18-020-53-6, EDGEWOOD, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. CD 11/12, under LB.

▲ **Morris Cafritz**, 1404 K St. N. W., and **Charles H. Tompkins**, 907 16 St. N. W., Wash., D. C. Owners Forces, **$26,000,000,** community of OFFICES, APARTMENTS, SHOPS AND HOTELS, Florida and Connecticut Aves. 19 St. and Columbia Rd. N. W., 1st unit, Park at Your Desk Office Bldg., **$8,000,000;** 2nd unit office **$4,000,000;** 3rd unit hotel, **$9,000,000;** 4th unit apartment, **$5,000,000** WASH., D. C. Roy L. Werner, 1404 K St., N. W., Wash., D. C. archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

La., New Orleans—B.A. 12/19—City, City Hall, Palmetto Street Overpass, $750,000. Extended date. David W. Godat & Assoc., Terminal Station Bldg., engrs. CD 11/18.

▲ **Fla., Coral Gables**—B.A. 3/1—City, M. B. Garris, city engr., City Hall, sewage treatment plant and sewer lines. $2,850,000. CD 11/11.

BIDS ASKED—BUILDINGS

Ala., Birmingham—CHURCH—B.A. 12/16—West End Baptist Church, c/o Lawrence S. Whitten, archt., Brown-Marx Bldg., church. $450,000. CD 2/6.

Ala., Eufala—HOSPITAL—B.A. 12/16—Barbour Co., Eufala, hospital. $700,000. Sherlock, Smith & Adams, 303 Washington Ave., Montgomery, archts. CD 3/18.

Ala., Huntsville—SCHOOL—B.A. 12/16—City, high school. $875,000. Plans deposit $50. Van Keuren, Davis & Co., 3004 7 Ave. S., Birmingham, archts. Extended date. CD 8/5.

Fla., Tallahassee—POWER PLANT—B.A. 12/16—City, City Hall, power plant addn. Approx. $500,000. Plans deposit $50. Reynolds, Smith & Hills, P.O. Box 4817, Jacksonville, engrs.

Ga., Warrenton—HOUSING—B.A. 12/16—Warrenton Housing Auth., Warrenton, housing Projects GA 127-1 and GA 127-2. $325,000. CD 4/1.

Ga., Arlington—HOUSING—B.A. 12/18—Arlington Housing Auth., Arlington, housing Project GA111-1. Plans deposit $50. H. L. Holman, Jr., Ozark, Ala., archts.

Ga., Statesboro—HOUSING—B.A. 12/18—Statesboro Housing Auth., Statesboro, 88 unit housing Projects GA-132-1 and GA-132-2. $800,000. Abreu & Robeson, Walton St. N.W., Atlanta, archts. CD 4/1.

Ga., Waynesboro—HOUSING—B.A. 12/18—Waynesboro Housing Auth., Waynesboro, housing Projects GA 86-7, GA 86-8, GA 86-9, GA 86-10, and GA 86-11. $300,000.

† **Tenn., Murfreesboro**—LAUNDRY—B.A. 12/23—Veterans Admin., Munitions Bldg., Wash., D. C., Laundry Bldg. 12 addn., Veterans Admin. Hospital.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **T. F. Scholes, Inc.**, P. O. Box 4598, Berkley Station, Norfolk, Va., LB **$449,971,** training railway addn., ENG 44-110-53-7; Spec. 771, FORT EUSTIS, VA. U. S. Eng., foot of Front St., Norfolk, Va. Bids Nov. 18. CD 10/23.

† **A. H. Ewing's Sons**, 3 W. Cary St., Richmond, Va., LB **$333,383,** operations bldg., control tower, utilities

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† **Jack Stone Co.**, 55 "K" St. S. E., Wash., D. C. LB **$948,960**, radio transmitter antenna sys. at Monogram and radio receiver antenna sys. at Northwest, NOY 74887, Spec. 35790, MONOGRAM and NORTHWEST, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Nov. 17. CD 11/6.

† **Horne Bros., Inc.**, 25 and River Rd., Newport News, Va. LB **$334,000**. 5 structural steel radiators (towers) one at 800 ft. four at 300 ft. high, NOY 28492. Spec. 30127, MONOGRAM, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Nov. 18. CD 11/6.

▲ † **McKoy-Helgerson Co.**, P. O. Box 57, Greenville, S. C. LB **$1,536,000**. addnl. facilities, Naval Mine Depot, NOY 26917, Spec. 28932, YORKTOWN, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Baskervill & Son, 2313 W. Cary St., Richmond, Va. engrs.-archts. Bids Nov. 13. CD 10/7.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh.

Barrus Constr. Co., Box 561, Kinston, N. C. LB **$89,825**, Est. $75,000-$100,000, sand asph. base, surf. 6.6 mi. U. S. 70, Proj. BS 2-6-16-127, Carteret Co.;

Macon Constr. Co., Franklin, N. C., LB **$202,599**, est. $225,000-$250,000, grading 5.79 mi. Proj. 7200, S.F. 186 (6), Caldwell Co.;

A. R. Thompson Contr., Inc., Rutherfordton, N. C. LB **$129,196**, est. $200,000-$225,000, traffic bound macad. bit. surf. tr., Proj. 9-451, McDowell Co.;

Ben B. Propst, Box 526, Concord, N. C. LB **$781,793**, est. over $400,000. traffic bound macad., stabil. aggregate, bit. surf. tr. 25.03 mi. Proj. 5845, F-645 (9), Davidson and Randolph Counties;

H. F. Ramsey Co., Inc., Asheville, N. C. LB **$323,123**, est. $400,000-$500,000 traffic bound macad., bit. surf. tr. 6.59 mi. U. S. 19 and 23, Proj. 9701, F-392 (4), F-635 (2), F-543 (7), Yancey and Madison Counties;

Sloan Constr. Co., Inc., Box 747, Greenville, S. C. LB **$142,157**, est. $175,000-$200,000, sand asph. or b. conc. base and surf. 14.38 mi. Proj. 3-9-32-219, 3-9-33-230. New Hanover and Pender Counties;

H. R. Stewart & Co., 5 Westchester Dr., Asheville, N. C. LB **$180,780**, est. $150,000-$175,000, traffic bound macad., bit. surf. tr. 4.49 mi. N. C. 105, Proj. 8135, S-450 (1), McDowell and Burke Counties;

Taylor Constr. Co., Inc., Johnson City, Tenn., LB **$124,656**, est. $125,000-$150,000. b. conc. binder and surf. 10.4 mi. U. S. 52 and 21, N. C. 67, Proj. BS 8-6-72-155, BS 8-6-76-149, Code 5900-805, Code 5900-813, Stokes and Yadkin Counties. Bids Nov. 18. CD 11/10.

Ivy H. Smith Co., 1525 San Marco Blvd., Jacksonville, Fla., CA, **$141,375**, piping only municipal water softening plant addn., HOLLYWOOD, FLA. City, Joseph W. Watson, city mgr., City Hall, Hollywood Fla. Eugene C. Hedges, Hollywood, Fla., city engr.

Boh Bros. Constr. Co., 2400 Cypress St., New Orleans, La. CA **$732,398**. Proposal No. 2652, constr. St. Bernard Underpass, Gentilly Blvd. at Florida Ave., New Orleans, LA. City Purchasing Div., 302 City Hall, New Orleans, La. Bids Oct. 24, awarded Oct. 31. CD 11/6 under CA.

Volz Constr. Co., Ripley, Tenn., CA **$261,000**. WW imprvs., east part of JACKSON, TENN. City, Jackson, Tenn. CD 11/27/51.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Duke Constr. Co.**, Military Hy. and Bells Rd., Norfolk, Va., Owner Builds. Approx. **$2,400,000**. 285 frame, masonry HOUSES; **$750,000**, 1 story masonry shopping center, approx. 15 stores, NORFOLK, VA. CD 8/8.

Fred J. Wiggins, 130 E. 4 St., Charlotte, N. C. Owner Builds. **$600,000**. 65 RESIDENCES, 3rd addn. to Lakeview Sub-division, CHARLOTTE, N. C.

▲ **Fiske-Carter Constr. Co.**, Spartanburg, S. C. CA. Approx. **$1,000,000**. MILL 2, CLINTON, S. C. Clinton Cotton Mills, Clinton, S. C. CD 10/31, under CA.

L. A. Nelson & Co., Main St., Greenville, S. C. CA **$90,000**. shirt PLANT addn., GREER, S. C. Greer Shirt Corp. Greer, S. C.

George L. Fuller Constr. Co., Fuller Bldg., Augusta, Ga., CA. **$558,000**. HIGH SCHOOL, NORTH AUGUSTA, S. C. Aiken County School Dist., Aiken, S. C. Bids Oct. 29. CD 11/6, under LB.

De Give, Dunham & O'Neill, Grand Theatre Bldg., Atlanta, Ga., CA, **$981,000**, TWIN BLDG, addn., at State Hospital, MILLEDGEVILLE, GA. State Dpt. P. Welfare, State Office Atlanta, Ga. Bids Oct. 21. CD 10/28, under LB.

Lakewood Homes, Shorter Ave., Rome, Ga., Owner Builds **$600,000**, 125 RESIDENCES, ROME, GA.

Gill Constr. Co., 113 S.E. 2 St., Ft. Lauderdale, Fla., Owner Builds, **$350,000**. MOTEL, FORT LAUDERDALE, FLA.

Cowart Bros., 217 W. Church St., Jacksonville, Fla., Owner Builds. $750,000, 74 RESIDENCES, JACKSONVILLE, FLA.

Clutter Constr. Co., 20 S.W. 27 Ave., Miami, Fla., Owner Builds, $400,000, HOTEL, MIAMI BEACH, FLA.

Ray Childs, Decatur, Ala., CA. **$360,000**, CHURCH addns., DECATUR, ALA. First Presbyterian Church, Decatur, Ala.

(Continued on page 85)

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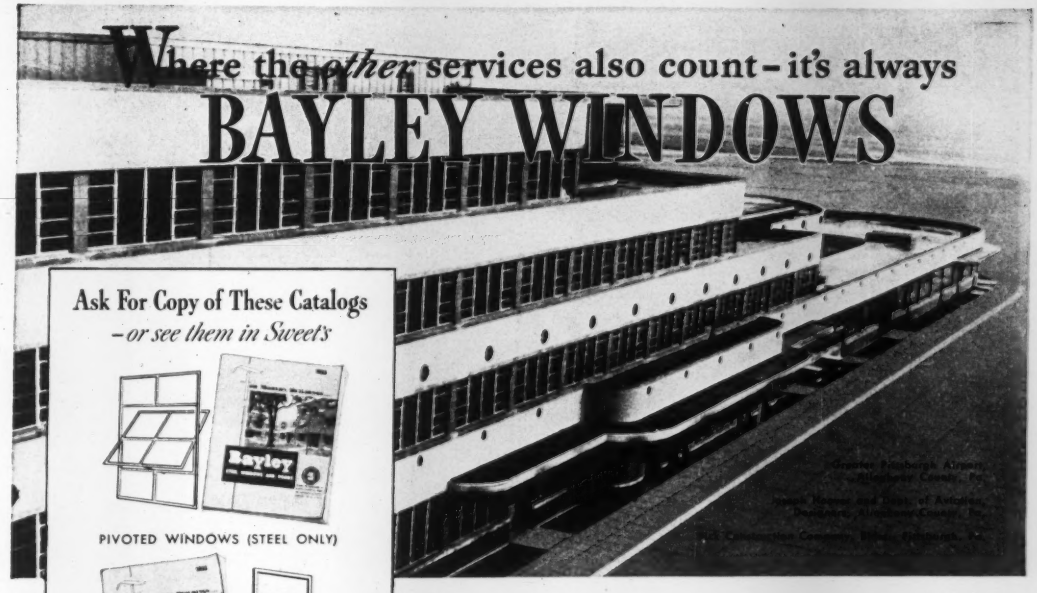

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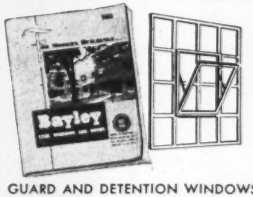

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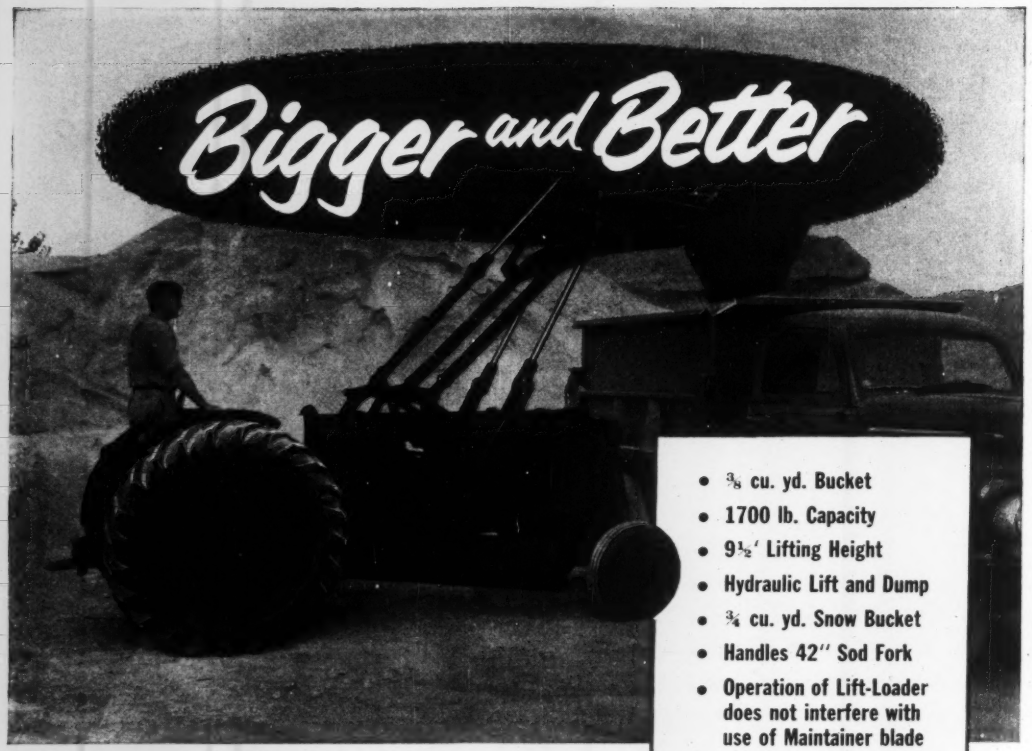

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HUBER

(Continued from page 82)

Inwood Constr. Co., Trinity Universal Bldg., Dallas, Tex. CA Est. $550,000. Department STORE, ALEXANDRIA, LA. Haas Investment Co., c/o contractor.

Winchester Bros., 5900 S. Front St., New Orleans, La. CA Est. $300,000. CHURCH, NEW ORLEANS, LA. Oak Park Presbyterian Church, c/o contractor.

† **Sheet Metal Fabricating Co.,** Kankakee, Ill. LB $658,963. general contract utilities SHOPS, DINING HALL bldg. addns., alterations, Veterans Admin. Hospital, LEXINGTON, KY. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Nov. 18. CD 11/3.

▲ **Crawford Corp.,** 2019 N.E. Third St., Baton Rouge, La. Owner Builds. $6,000,000. 1,000 RESIDENCES, LOUISVILLE, KY.

▲ **J. A. Jones Constr. Co.,** 209 W. 4 St., Charlotte, N.C. CA $1,214,500. ADMINISTRATION and STUDENT UNION BLDGS., OWENSBORO, KY. Kentucky Wesleyan College, Owensboro, Ky. Bids Nov. 18, awarded Nov. 20.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Mich., Adrian—SCHOOL—B.A. 12/10—Bd. Educ. Madison School Dist., 2 story, brick, steel Madison Rural School addn., Treat Rd. $300,000. Plans deposit $20, refundable, Francis A. Faulhaber, 128 E. Maumee St., archt. CD 8/29.

▲ **Mich., East Lansing**—DORMITORY—B.A. 12/11—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, brick, steel, concrete dormitory incl. food service bldg. and 3 bldgs., Michigan State College, Michigan Ave. and Harrison Rd. $7,500,000, Extended date. Ralph R. Calder, 1212 Kale Bldg., Detroit, archt. Snyder & McLean, 2214 Penobscot Bldg., Detroit, engrs. CD 10/31.

Ill., Alton—HOUSING—B.A. 12/17—Madison County Housing Auth., D. F. Braner, exec. dir., 3 and Haller Sts., East Alton, Proj. Ill. 15-4, incl. 58 two story bldgs., 115 dwelling units, 17 one story buildings, 34 dwelling units and 1 story management and maintenance bldg. Friedman, Alschuler & Sincere and Ernest A. Grunsfeld Associated Architects and Engineers, 223 W. Jackson Blvd. Chicago, 6, Ill., archts. CD 3/27/51.

Mich., Marquette — HOSPITAL — Bids Asked — Morgan Heights Sanatorium, Dr. James R. Acockes, supt., brick, masonry tuberculosis hospital addn., alterations. $350,000. Plans deposit $50, refundable, Harry W. Gjelsteen, 212 First St., Menominee, archt. CD 1/28/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., State Office Bldg., Columbus, **The Baker & Hickey Co.,** P.O. Box 5008-Tri-Village Station, Columbus, O., CA. $1,649,240, est. $1,593,000, Type T-50 on B-71 and structures 0.711 mi. SR 46-(3.35)-3.65), S.R. 169 (2.14-2.74), U-UG-635 (4) U-1098 (1), City of Niles, Proj. No. 323, Trumbull Co. Bids Nov. 14. CD 11/19, under LB.

National Constr. Co., 23500 Lakeland Blvd., Euclid, O., CA. $776,940, est. $600,000. storm relief sewer in Lloyd Rd. from Lake Erie south to county line, 10-ft. brick in tunnel, EUCLID, O. City, City Hall, 585 E. 222 St., Euclid, O. Bids Oct. 13, awarded Nov. 12. CD 10/27 under LB.

WISCONSIN—State Hy. Comn., Madison, Wis.

La Crosse Dredging Corp., 310 S. Michigan Ave. Chicago, Ill., LB, $229,224, Contract 3, structures, The Old U.S.H. 4-S.T.H. 23 (Sonn and Boland Subways) Road, U.S. Hy. 41, Proj. FG 03-1 (31) (32) Fond du Lac Co; LB, $146,487, Contract 2, structures, The Old U.S.H. 41-S.T.H. 23 (Corum Subway) Road, Proj. FG 03-1 (30) U.S. Hy. 41, Fond du Lac Co. Bids Nov. 18. CD 10/31.

▲ **WISCONSIN**—State Hy. Comn., Madison,

Phillip C. Kaiser, Portage, Wis., LB, $96,267 Contract 1, grading, draining 5.561 mi. U.S.H. 51-C.T.H. "B" Rd., S.T. Hy 22, S 0294 (4), Columbia Co.;

John F. Bloomer Co., Appleton, Wis., LB, $249,018 Contract 1, base course 1.583 mi. USH 41-Appleton Road (College Ave. Extension) S. Hy. 125, Proj. S 0730 (1) and SG 0730 (3) and T 0730 (1), Outagamie Co.;

H. Turner & Son, Boscobel, Wis., LB, $198,062, Contract 1 grading, draining 2.051 mi. Ellsworth-Durand Rd., U.S. Hy. 10, Proj. F 019-1 (32), Pierce Co.

I. H. Pertzsch, N. 2 St., Onalaska, Wis., LB, $149,354 Contract 1, c. conc. 0.712 mi. La Crosse-Holmen Rd., U.S. Hy. 53, U 5101 (7), La Crosse Co.;

Murphy Constr. Co., Black Creek, Wis., LB, $168,832 Contract 1, b. conc. surf. Seymour-East County Line and West County Line-Green Bay Rd., S.T. Hy. 54, Proj. 038-2 (18) and (20), Outagamie and Brown Counties;

Jay W. Craig Co., 1814 N. E. California St., Minneapolis, Minn., LB, $166,272, Contract 1, single aggregate bit. 13.25 mi. West County Line-Bloomer Rd., S.T. Hy. 40, Proj. T 058 (3), Chippewa Co.;

Mathy Constr. Co., 508 Hoeschler Bldg., La Crosse, Wis., LB, $125,100, Contract 3, single aggregate bit. 8.006 mi. The U.S.H. 63-East County Line and West County Line-Connorsville Rd., Proj. T 059 (5), (3), S.T. Hy. 64 St. Croix and Dunn Counties;

Rein & Schultz, 119 E. Washington Ave., Madison, Wis., LB, $126,564, Contract 1, single aggregate bit. 6.966 mi. Hager City-U.S.H. 10 Road, U.S. Hy. 63 Proj. F 028-1 (35), Pierce Co. Bids Nov. 18 CD 10/31.

G. H. Sargent Co., West Branch, Mich. CA Est. $200,000. sewage treatment plant, interceptor sewers, force

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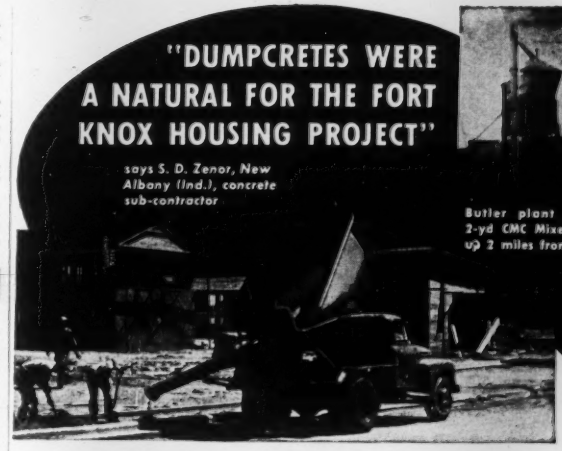
says S. D. Zenor, New Albany (Ind.), concrete sub-contractor



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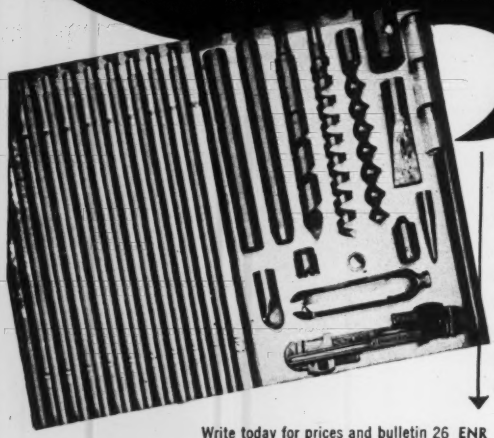

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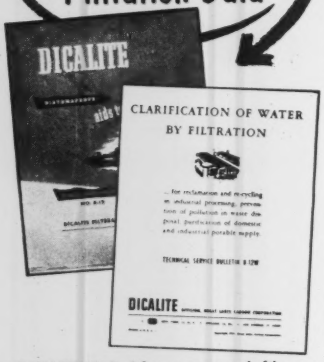

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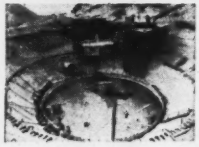

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BUILDINGS

LOW BIDS AND CONTRACTS

▲† **George Sheaf & Co.**, 449 Neilston St., Columbus 3, O., CA. **$1,048,856**, 2 WAREHOUSES and washracks, Lima Ordnance Depot, Serial No. ENG 46-022-53-6, LIMA, O. U.S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids Oct. 3. CD 9/10.

Kaiser-Ducett Co., 80 E. Jackson Blvd., Chicago 4, Ill. CA. **$400,000.** FACTORY, CO2 and dry ice, URBANA, O. Liquid Carbonic Co., 31st and Kedzie Sts., Chicago, Ill. Awarded Nov. 12.

Harvey A. Hanson, 1851 Elston Ave., Chicago, 14, Ill., CA, **$300,000** Sauganash SCHOOL, CHICAGO, ILL. Bd. Educ., 228 N. LaSalle St., Chicago, Ill. Bids Oct. 24. CD 10/17.

Mercury Builders, 5412 W. North Ave., Chicago, 39, Ill., CA, **$414,371**, 2 story, brick Abraham Lincoln SCHOOL CICERO, ILL. School District 99, 5110 W. 24 St., Cicero, Ill. Awarded Nov. 14. CD 10/2, under LB.

Erik A. Borg Co., 6649 N. Ridge Ave., Chicago, Ill., LB, **$306,700**, 3 story, bsmnt., 45x170 ft. GIRLS DORMITORY, RIVER FRONT, ILL. Concordia Teachers College 7400 Augusta Blvd., River Front, Ill. Perkins & Will, 309 Jackson Blvd., Chicago, Zone 6, archts. CD 11/13.

▲ **Darin & Armstrong, Inc.**, 2041 Fenkel St., Detroit, Mich. CA Est. **$5,000,000.** 1 story, 450,000 sq. ft. mfg. hydraulic steering gears, PLANT and 100x750 ft. MAIN BLDG., M-46 and Towerline Rd., SAGINAW, MICH. Saginaw Steering Gear Div., General Motors Corp., 628 N. Hamilton St., Saginaw, Mich. Bids Nov. 3. CD 10/21.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Tex., Anahuac**—B.A. 12/25—Trinity Bay Conservation Dist., Anahuac, Cont. 48D02, imprv. 9.08 mi. Spindletop Bayou, Jefferson Co., involving 2,102,000 cu. yd. ditch excav., $575,000; Cont. 48D03, rein.-con. pier on treated timber pile, $75,000; Contr. D48D04, imprv. 13.67 mi. Spingle Top Bayou in Chambers and Jefferson Counties, 1,377,000 cu. yd. dragline ditch excav., $382,000. Plans deposit $15. Freese, Nichols & Turner, 2111 C & I Bldg., Houston, engrs. Extended date. CD 11/6.

Tex., Houston—TELEVISION STATION—Bids Asked—University of Houston, 3801 Cullen Blvd., and Houston Independent School Dist., 1600 Washington St., television station. $225,000. CD 8/28.

BIDS ASKED—BUILDINGS

Mo., St. Louis—HOSPITAL—B.A. 12/10—Barnard Free Skin & Cancer Hospital, John R. Shepley, pres., 3427 Washington Ave., Zone 3, 4 story, ground floor, 45x128 ft., brick, rein.-con., 40-bed cancer hospital, Barnes Hospital Group vicinity of Kingshighway and Euclid Ave. Russell, Mullgardt, Schwartz & Van Haefen, 1620 Chemical Bldg., 721 Olive St., Zone 1, archts. Brussel & Viterbo, Arcade Bldg., 812 Olive St., Zone 1, engrs. CD 10/14.

N. D. Williston—COURT HOUSE—B.A. 12/11—Williams Co., Williston, court house, $600,000. W. F. Kurke & Assoc., 1117 13 Ave. N., Fargo, archts. CD 8/28.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Dravo Corp.**, Dravo Bldg., Pittsburgh, Pa. CA. Est. **$1,000,000.** 887 ft. dock in Mississippi River adjacent to plant, consisting of 8 barge-mooring piers each 20 ft. in diam., ST. LOUIS, MO. Great Lakes Carbon Corp., 526 E. Catalan St., St. Louis 11, Mo.

† **Rorick Constr. Co.**, 905 S. 20 St., Omaha, Neb. CA. **$850,184.** WAF dormitories, mess and admin. bldg. at Offutt Air Force Base, Inv. 25-066-53-130, FORT CROOK, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Nov 13. CD 11/18, under LB.

KANSAS—State Hy. Comm., Wichita.

Stannard Constr. Co., 428 N. Rock Island St., Wichita, Kan. CA. **$239,168.** c. conc. 1.585 mi. Proj. AD-2 (1), Part I, Sedgwick Co. Bids Nov. 13. CD 11/5.

▲ **Southwestern Bell Telephone Co.**, Auditorium Circle, San Antonio, Tex., Own Forces. Approx. **$2,500,000.** 153 mi. underground coaxial cable line from San Antonio to Corpus Christi for telephone and TV reception, TEXAS. CD 11/09.

† **Cage Bros.**, Rte. 10, Box 46, San Antonio, Tex. CA **$593,246**, addnl. embankment slope protection, Dam "B," Inv. No. CIVENG 41-443-53-10, TEXAS. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Oct. 24. CD 10/29 under LB.

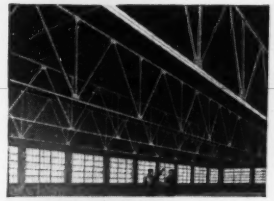
† **Worth Constr. Co.**, Box 531, Fort Worth, Tex. CA. **$506,291**, maintenance apron, Carswell Air Force Base, ENG 41-443-53-14, FORT WORTH, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Oct. 21. CD 10/29 under LB.

† **Edward Morgan & Jones Gillis**, Box 4327, Fondren Station, Jackson, Miss., CA. **$618,225**, runway extens., **$203,513**, parking apron, Gray Air Force Base, Inv. No. Eng 41-443-53-18, KILLEEN, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bid Nov. 7. CD 11/12 under LB.

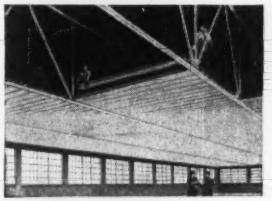
▲ **Continental Pipe Line Co.**, subsidiary of Continental Oil Co., W. L. Kyger, pres., Ponca City, Okla. Owner Builds. **$5,000,000.** 600 mi. oil pipe line from Billings, Mont. to Spokane, Wash., MONTANA-IDAHO-WASHINGTON. CD 11/7.

▲† **Lease & Leigland**, 1501 N. 35 St., Seattle 3, Wash. CA **$1,664,700**, est. $1,592,241. dormitories,

(Continued on page 88)



To this old factory . . .



they simply did this . . .

to get this . . .

Fenestra acoustical-structural panel ceiling changes old factory into modern office . . . OVERNIGHT!

Out of a sow's ear . . . !

A big Michigan concern needed office space in a hurry and the only available building was an old one-story factory.

Steel beams (the bottom chords of the roof trusses) ran clear across the building . . . every 20 feet.

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While they were doing all this, the company employees went right on working below. Using the first few panels laid as a storage and working platform the installation crew stayed up above. And, of course, there was neither dirt nor dust to shower down below.

They can clean their Fenestra acoustical ceiling with soap and water, or paint it without hurting its acoustical efficiency. And, of course this acoustical ceiling is noncombustible.

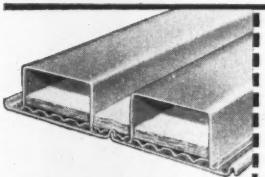
Cost?

Less than $1.25 per square foot . . . installed!

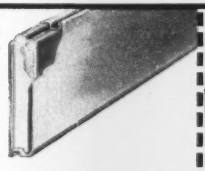
If you would like to know more, write to the Detroit Steel Products Company, Department ER-12, 2286 East Grand Boulevard, Detroit 11, Michigan. Also ask about the other money-savers you see illustrated below. *®

Fenestra METAL BUILDING PANELS

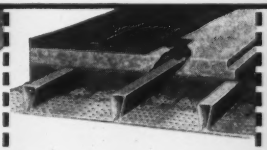
. . . engineered to cut the waste out of building



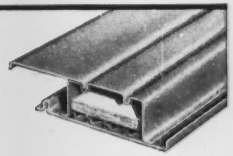
Acoustical "D" Panels for roofs, floors, ceilings. Width 16". Depth 1½" to 7½".



"C" Insulated Wall Panels. Width 16". Depth is 3". Steel or aluminum.

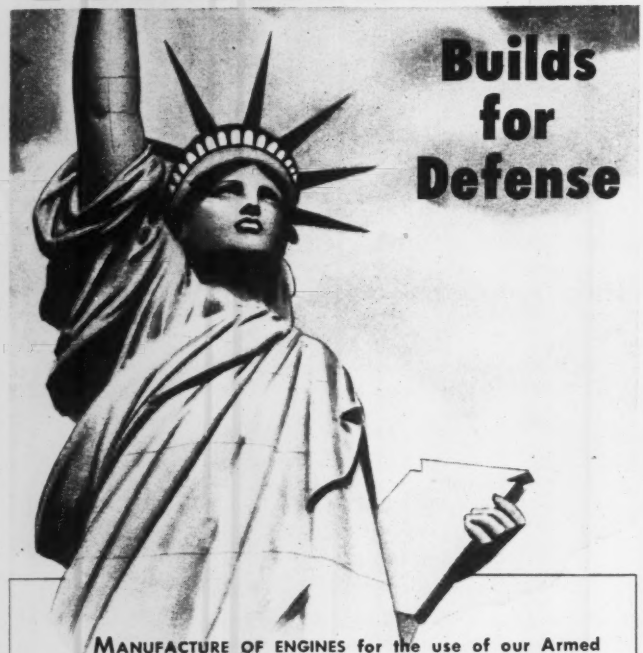


Acoustical Holorib for acoustical-structural roof. Width 18". Depth 1½".



Acoustical "AD" Panels for ceiling-silencer-roof. Width 16". Depth up to 7½".

CONTINENTAL



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ESTABLISHED SERVICE FROM COAST TO COAST

Continental Motors Corporation
MUSKEGON, MICHIGAN

(Continued from page 86)

mess-admin. bldg., Great Falls Air Force Base, Inv. 53-21, GREAT FALLS, MONT. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. CD 10/21, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **A. H. Neumann & Bros.**, 514 Hubbell Bldg., Des Moines, Ia., LB. **$3,339,000**, general contract;

Allen Plumbing & Heating Co., 623 6 St., Des Moines, Ia., LB, **$328,250**, plumbing and heating for Veterans Memorial AUDITORIUM, DES MOINES, IA. City, City Hall, Des Moines, Ia. Bids Nov. 6. CD 9/19.

▲ **Jones-Hettelsater Constr. Co.**, 1911 Baltimore St., Kansas City, Mo. and **Davey & Moen**, Mason City, Ia., CA, **$1,000,000**. three feed mixing PLANT bldgs. MASON CITY, IA. Allied Mills, Bd. of Trade Bldg., Chicago, Ill.

▲ **Lippert Bros.**, 2800 N. Santa Fe St., Oklahoma City 5, Okla., LB **$1,143,343**. Negro HIGH SCHOOL, 10 and Eastern Sts., OKLAHOMA CITY, OKLA. Bd. Educ., 400 N. Walnut St., Oklahoma City, Okla. Bids Nov. 18. CD 10/28.

▲ **Carpenter Bros.**, 1335 Plowman St., Dallas, Tex., CA **$1,305,000**. Item 1, structures of test LABORATORIES BLDG., DALLAS, TEX. Chance Vought, Div. of United Aircraft Corp., Box 5907, Dallas, Tex. Bids Nov. 7, awarded Nov. 17. CD 11/19, under LB.

Brace & Carruth, 706 Garden Oaks St., Houston, Tex. Owner Builds. **$450,000**. Unit 1, SHOPPING CENTER, off N. Shepherd and W. 11 Sts., HOUSTON, TEX. CD 10/21.

Schneider Constr. Co., Box 13157, Houston, Tex. LB **$379,424**. CHURCH, HOUSTON, TEX. River Oaks Baptist Church Congregation, c/o Hamilton Brown, archt., 2019 W. Gray St., Houston, Tex. Bids Nov. 17. CD 11/19, under LB.

† **J. A. Sharrock**, Box 268, Marshall, Tex. CA. **$980,000**, construct Facilities "A", Plant No. 2, Longhorn ORDNANCE WORKS, Inv. No. Eng 34-066-53-54, MARSHALL, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Nov. 13. CD 11/10.

Ross Smith & Assoc., Mesquite, Tex., Owner Builds. **$370,000**. 37 DWELLINGS, MESQUITE, TEX. CD 9/17.

J. B. Andrews & Assoc., Mesquite, Tex., Own Forces. Approx. **$340,000**. 40 DWELLINGS, MESQUITE, TEX. CD 9/17.

Bd. Educ., Riverton, Wyo., rejected bids Oct. 8, Ashgrove Elementary SCHOOL, RIVERTON, WYO. Will re-advertise.

† **Campbell & Kay**, Box 4091, Station A, Albuquerque, N. M. LB **$963,833**, est. $950,000. BUILDING 880 addn., Inv. No. 293-53-18, ALBUQUERQUE, N. M. U. S. Atomic Energy Comn., Box 5900, Albuquerque, N. M. Bids Nov. 14. CD 10/14.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Calif., Travis Air Force Base**—SHOPS—B.A. 12/12—U. S. Eng., Wright Bldg., Sacramento, squadron shops, ENG 53-34, Spec. 1689.

† **Calif., Travis Air Force base**—HEADQUARTERS—B.A. 12/17—U. S. Eng., Wright Bldg., Sacramento, air base group headquarters, Spec. 1679.

† **Washington**—B.A. 12/30—Bureau Reclamation, Dpt. Interior, Ephrata, Wash., earthwork, pipe lines and structures for Area P-8 laterals, sublaterals and wasteways, Potholes East Canal Laterals, Columbia Basin Proj., west of Eltopia, Spec. DC 3845; adv. ENR 12/4.

Calif., Bakersfield—Bids Asked—City, 2101 "H" St., sanitary sewers in Planz Rd., $141,943. Extended date. R. E. White, 1716 Oak St., engr.

BIDS ASKED—BUILDINGS

Calif., Stockton—SCHOOL—B.A. 12/9—Stockton City Unified School Dist., 324 N. San Joaquin St. Grover Cleveland Elementary School. Plans deposit $50. Victor Galbraith, 312 Exchange Bldg., archt. CD 6/14/51.

Ore., Portland—SCHOOL—B.A. 12/10—School Dist. 1, 631 N. E. Clackamas St., 8-room rein.-con. addn. to Highland School, Roald, Schmeer & Harrington, Portland Trust Bldg., archts.

Calif., Sonoma—SCHOOL—B.A. 12/17—Sonoma Valley Union High School Dist., Sonoma, Sonoma Valley Union High School addns. Plans deposit $25. John Lyon Reid, 1069 Market St., San Francisco, archt. CD 10/29/51.

Calif., Miranda—SCHOOL—B.A. 1/7—Southern Humboldt Unified School Dist., Miranda, school site development, sewers, $500,000. Ernest Frederick Winkler, Harold M. Hansen, 251 Post St., San Francisco, archts. CD 8/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **U. S. Eng.**, 4735 Marginal Way, Seattle 4, Wash. received no bids Nov. 5, 2 battery-charging motor-generator sets for Ableni Falls Dam, Newport, Inv. 53-28, IDAHO. CD 10/14.

▲† **Utah Constr. Co.**, 144 E. Broadway, Salt Lake City, Utah, LB **$2,486,613**, est. $3,202,207, constr. 3.3 mi. Gateway Tunnel, 9 ft. diam., concrete lined, Weber Basin Proj., UTAH. Bureaun Reclamation, Dpt. Interior, Ogden, Utah. Bids Nov. 13. CD 10/17.

† **Anderson Constr. Co.**, Route 1, Box 210—A, Vancouver, Wash., LB, **$257,600**, 36 raceways ponds, 2 holding ponds Carson Fish Station, Skamania Co., WASHINGTON U. S. Fish & Wildlife Service, Swan Island, Portland, Ore. Bids Nov. 17. CD 11/6.

(Continued on page 91)

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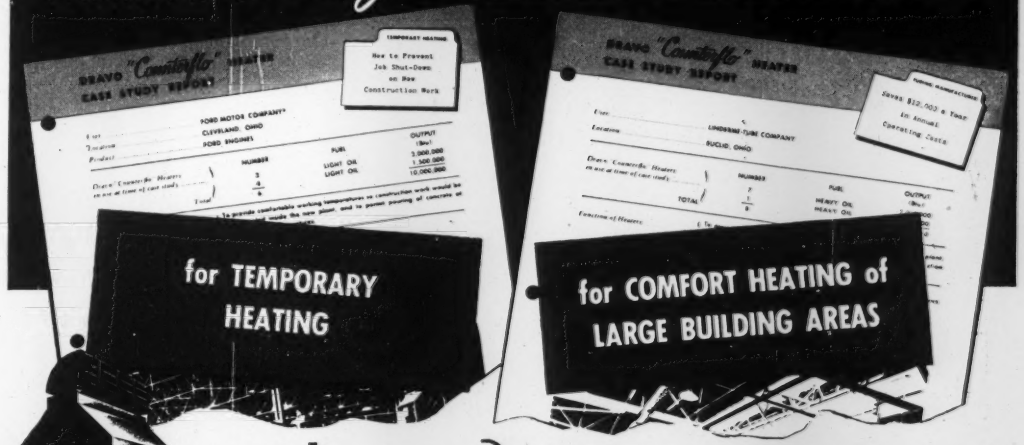

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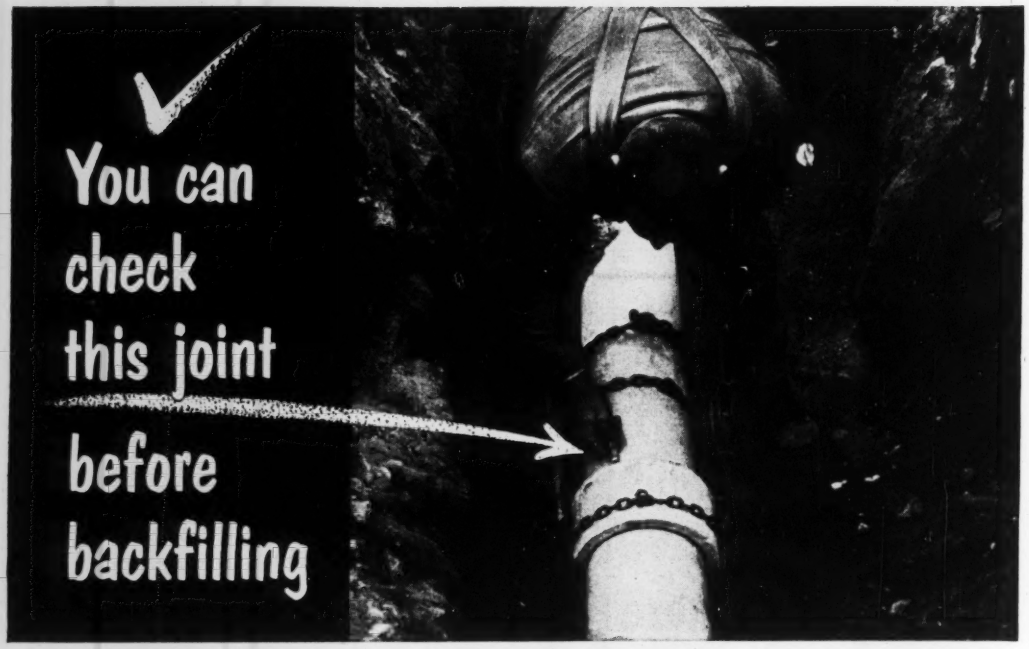
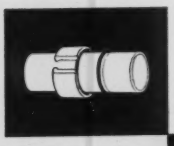
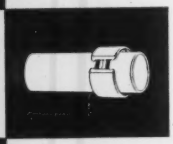


. . . it's the *tight* RING-TITE JOINT used with TRANSITE SEWER PIPE

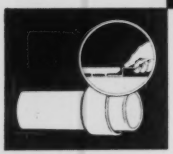
HERE'S HOW THE RING-TITE JOINT WORKS:



◀ **Start of assembly.** Two rubber rings and a Transite sleeve (cut away to show position of the rings) are placed on one of the two pipe ends to be joined.



▶ **Final position.** Sleeve centered over both pipe ends, with the rubber rings tightly compressed between sleeve and pipe.



◀ **Checking joint** for proper assembly. This is done with a simple gauge immediately after the joint is made . . . *before backfilling.*

*Transite is a registered Johns-Manville trade mark

NOT ONLY IS IT POSSIBLE to assemble the new Ring-Tite Coupling in a fraction of the time required for making ordinary sewer pipe joints—but, with the use of a simple feeler gauge, you can check this joint for proper assembly as soon as it is made, *and backfill immediately!*

This "packaged" joint—furnished with Transite* Pipe and ready for assembly—has still other important practical advantages. Not only are there fewer joints to make due to long thirteen-foot lengths, but time is saved also by eliminating the use of poured compounds. Just a simple assembly operation with a mechanical coupling puller, and the Ring-Tite Joint is ready for service.

Its tightness means less infiltration in the sewerage system and this effects savings in treatment costs. Transite's high-flow capacity (Manning's n = .010) often results in substantial installation savings by permitting flatter grades and shallower trenches—an important economy where pipe is laid at or below the ground water table or in rock excavation.

For further data about this corrosion-resistant asbestos-cement pipe and how it can save money for you, write for Folder TR-103A. Address your inquiry to Johns-Manville, Box 60, New York 16, N.Y.

JOHNS-MANVILLE PRODUCTS

Johns-Manville TRANSITE SEWER PIPE

(Continued from page 88)

▲† **Morrison-Knudsen, Macco Corp. & Peter Kiewit Sons Co.,** Box 450, Boise, Idaho, CA. **$2,987,374** power house, Lookout Point Dam, Lane Co., Civeng 35-026-53-20, OREGON. U. S. Eng., Pittock Block, Portland, Ore., Bids Oct. 15, awarded Nov. 18, under LB.

† **OREGON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland,

Peter Kiewit Sons Co., Longview, Wash., CA. **$241,463,** constr. 7.4 mi. Thomas Creek Rd., Fremont Forest, Lake Co. Awarded Nov. 18.

▲† **Cascade Constructors,** Box 774, Pasco, Wash., LB, **$3,270,925,** installing equipment at McNary Dam, Schedules A and D, Inv. 53-17, OREGON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Oct. 20. CD 10/24; under LB.

† **Morrison-Knudsen Co., Inc.,** 411 W. Fifth St., Los Angeles, Calif., LB, **$288,600,** riprap upstream slope at Mormon Island Dam, Spec. 1701, Folsom, CALIFORNIA, U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Nov. 13. CD 10/17.

Guy F. Atkinson Co., Box 259, Long Beach, Calif., LB, **$223,500,** est. $227,000, Santa Cruz By-Pass Bridge demolish Ocean Blvd. Bridge, LONG BEACH, CALIF. Long Beach Harbor Dept., 1333 El Embarkadero, Long Beach, Calif. Bids Nov. 13. CD 11/5.

A. Teichert & Son, Inc., 1931 Stockton Blvd., Sacramento, Calif. LB **$505,338,** East Storm Water Separation Project, SACRAMENTO, CALIF. City Hall, Sacramento, Calif. Bids Nov. 13. CD 10/30.

† **Erickson & Campbell,** 800 R St., Sacramento, Calif., LB, **$209,213** "K" system trainer bldg., human relations and resources center, Mather Air Force Base, Spec. 1646, SACRAMENTO, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Nov. 14. CD 10/17.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Robert E. McKee, Inc.,** 4700 San Fernando Rd., Los Angeles, Calif., LB, **$2,307,700,** general contract;

A. S. Schulman Electric Co., 641 Imperial St., Los Angeles, Calif., LB, **$582,324,** electrical work;

E. Willardson, Inc., 2880 Rowena Ave., Los Angeles, Calif., LB, **$339,000,** plumbing work, for 8 story, rein.-con. communicable diseases unit GENERAL HOSPITAL, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids Nov. 13. CD 10/9.

▲ **Bechtel Corp.,** 3750 Wilshire Blvd., Los Angeles, 5, Calif., CA, **$10,000,000,** thermofor catalytic reformer at refinery, TORRENCE, CALIF. General Petroleum Corp. (affiliated Socony-Vacuum Oil Co., Inc.), 612 S. Flower St., Los Angeles, 17, Calif.

T. A. Stanfield, 986 E. Base Line, San Bernardino, Calif., LB, **$862,963,** rein.-con., stucco, frame HIGH SCHOOL VICTORVILLE, CALIF. Victor Valley Union High School Dist., Victorville, Calif. Bids Nov. 12. CD 10/22.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Lac des Loups (Postal Dist., Mont Laurier)—STAFF DWELLINGS—B.A. 12/8—F. T. Collins, Dpt. Transport, Ottawa, Ont. staff dwellings, garage power house and related work at airport. Plans deposit $25.

Que., Howick—B.A. 12/13—Municipality, water system. $115,000. Y. Verzina, Ormstown, Que., engr. CD 10/2.

Ont., Toronto—Bids Asked—Don Mills Development Co., c/o John Layng, archt., 170 Bloor St. W., sewage disposal, plant for housing. King, Coons, Phelan & Porter, 8 Bedford Rd., engrs.

SOON LETS CONTRACT—BUILDINGS

Ont., Mount Dennis—WAREHOUSE—Canadian Admiral Corp., Ltd., 501 Lakeshore Rd., Port Credit, soon lets contract 1 and 2 story, 25,000 sq. ft. steel, concrete block, brick warehouse, Jane St. $100,000. N. A. Armstrong, 19 Melinda St., Toronto, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Winnipeg Supply & Fuel Co. Ltd., Boyd Bldg., Winnipeg, Man., CA, **$728,669,** air navigation school at Royal Canadian Air Force Base, WINNIPEG, MAN. Defence Constr. Ltd., Kensington Bldg., Winnipeg, Man. Awarded Oct. 31. CD 9/24.

Standard Paving Ltd., Harbor Commission Bldg., Toronto, Ont., CA, **$261,282,** exten. roads and services incl. storm sewer, conduit for steam heating, electric, grading and excavation Canadian Army Ordnce Depot, LONG BRANCH, ONT. Defence Constr. Ltd., 40 Eglinton Ave. E., Toronto, Ont. Bids July 3, awarded Oct. 31. CD 6/18.

BUILDINGS

LOW BIDS AND CONTRACTS

E. R. Tremblay Co., Inc., 39 Goulburn Ave., Ottawa, Ont., CA, **$393,000,** 50 concrete, brick DWELLINGS, Prestland Rd., OTTAWA, ONT. Ottawa Lowren Housing Ltd., 95 Echo Dr., Ottawa, Ont. Bids Oct. 29. CD 10/20.

▲ **Barnett McQueen Co., Ltd.,** 460 Christian St., Fort William, Ont., CA, **$1,233,000,** two pavilions and connecting passages for Ontario HOSPITAL, PORT ARTHUR, ONT. Dpt. P. Wks., Parliament Bldg.,

For Many Digging Jobs, *Only* the Sherman *Power* Digger is Practical

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Efficient performance of the Sherman Power Digger is assured by positive hydraulic action and patented actuated bucket.

The Sherman Power Digger is attached to a lightweight, rubber-tired tractor giving unmatched maneuverability and transportability.

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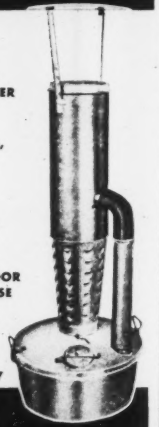

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Toronto, Ont. Bids Oct. 21, awarded Nov. 18. CD 9/26.

L. B. Magil Co., Ltd., 5275 Queen Mary Rd., Montreal, Que. CA, **$200,000**, 2 story, bsmnt., 118x166 ft., rein.-con., brick FACTORY, Iberville St., MONTREAL, QUE. H. M. Steinberg, 4151 W. Sherbrooke St., Montreal, Que. Greenspoon & Assocs., 4151 W. Sherbrooke St., Montreal, Que., archts.

Proposed Projects

WATER SUPPLY

▲ **Calif., Hayward**—City, City Hall, voted bonds water system, $1,750,000.

Ga., Elderton—City, City Hall, WW imprvs., **$400,000.**

Ind., Gas City—City, Theodore Strichler, city engr., wells, equipment, installing 34,200 ft. new mains, iron removal plant and aeration process, rehabilitation of tank, new service meters, **$250,000.** Clyde E. Williams, 312 W. Colfax St., South Bend, consult. engr.

Minn., St. Paul Park—Village, W. J. Fastener, clk., defeated **$390,000** bonds Nov. 4, water extensions. (Correction-status). CD 11/7.

▲ **Va., Richmond**—City, City Hall, 1953 WW imprvs. $1,107,000.

SEWERS, WASTE DISPOSAL

Calif., Hayward—City, City Hall, voted bonds sewerage system, $300,000.

▲ **Calif., Santa Clara**—City, City Hall, voted **$1,900,000** bond sewerage system. CD 2/7.

Ind., Rochester—City, City Hall, remodeling sewage plant. Approx. $250,000. Clyde Williams Assoc., South Bend, consult. engrs.

Kan., Hays—City, voted **$300,000** bonds Nov. 4, sewerage works imprvs., extens. Servis & Van Doren, Crawford Bldg., Topeka, consult. engrs. CD 10/22.

Kan., Junction City—City, c/o V. A. Basgall & J. Russell Calde, voted $500,000 bonds Nov. 4, sewage disposal plant, **$650,000,** Wilson & Co., 223 N. Santa Fe St., Salina, consult. engrs. CD 10/3.

Kan., Parsons—City, voted **$475,000** bonds Nov. 4, sewerage sys. expansion.

▲ **Minn., Edina and Richfield**—Village of Edina, B. Hawthorne, clk., and Village of Richfield, J. A. Klein, clk., (joint project), interceptors 12- to 54-in. joint sanitary sewerage sys. connecting with Minneapolis sewerage sys. **$2,490,000.** G. M. Orr Eng. Co., 1004 Marquette Ave., Minneapolis, consult. engr. CD 7/16/52, under Minn., Richfield.

▲ **N. Y., West Seneca**—Town, sewerage sys. and treatment plant. **$3,800,000.** CD 7/9/47.

Wis., Sheboygan—City, City Hall, storm sewers in Erie and Mead Aves. **$245,000.** R. E. Fleischer, c/o owner, engr. CD 2/6.

▲ **B. C., Vancouver**—Vancouver & Districts Joint Sewerage & Drainage Bd., Sun Bldg., sewerage project, **$30,000,000.** A. M. Rawn, Charles G. Hyde & John Oliver, city engr., c/o owner, are Bd. of Consulting Engineers. CD 11/14.

Ont., Barrie—Municipality ratepayers to vote Dec. 8, sewage disposal plant. **$510,000.** R. Campbell, Town Hall, town engr. CD 7/23.

BRIDGES

▲ **ALABAMA**—State Hy. Dpt., Montgomery, **Etowah Co.**—bridge over Coosa River Gadsden, **$2,000,000.** Troy E. Watford & Assocs., Gadsden, consult. engrs. CD 2/9/50.

▲ **Ill., Cicero**—Town, 4936 25 Pl., bridge at Laramie Ave. (52 Ave.) over yard and main line R/W of Chicago, Burlington & Quincy R. R. **$1,750,000.** De Leuw Cather & Co., 150 N. Wacker Dr., Chicago 6, Ill., consult. engrs. CD 1/3/50.

▲ **La., Covington**—St. Tammany and Jefferson Parishes' Police Jury, Court House, causeway across Lake Pontchartrain, Gretna. **$40,000,000,** Palmer & Baker, Inc., Staples Pake Bldg., Mobile, Ala., consult. engr. CD 9/26/51.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Metropolitan Dist. Comn., Parks Div., 20 Somerset St., Boston.

Somerville—Squires Bridge, **$1,000,000.** Duffill Assoc., 80 Boylston St., Boston, consult. engrs. CD 4/18/52.

UTAH—State Road Comn., State Capitol, Salt Lake City.

Salt Lake Co.—constr. Becks Hot Springs overpass for North-South Freeway through West Salt Lake City. $500,000. E. G. Johnson, c/o owner, state road engr.

Va., Norfolk—State Hy. Dpt., Richmond, underpass Norfolk & Western Ry. at Brambleton Ave. **$750,000.**

▲ **Wis., Kenosha**—City, City Hall, underpass on 30 Ave. $2,000,000. Consoer, Townsend & Assocs., 451 E. Ohio Ave., Chicago, Ill., consult. engrs.

STREETS AND ROADS

Ill., Park Ridge—City, 102 N. West Highway, street rehabilitation program. **$600,000.**

(Continued on page 95)

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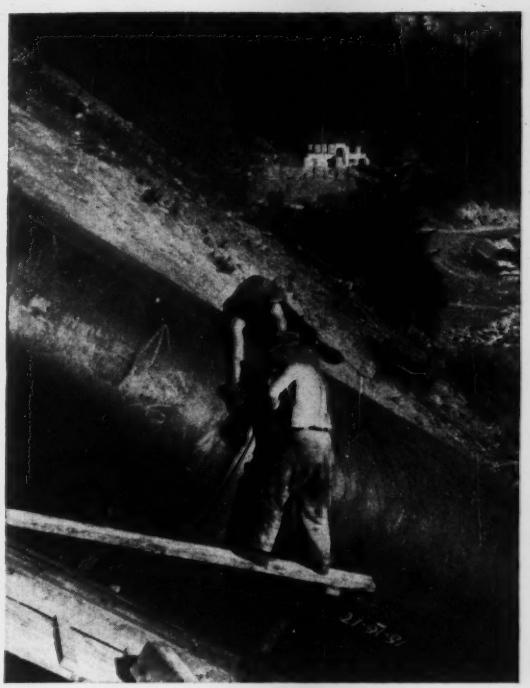

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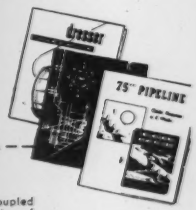

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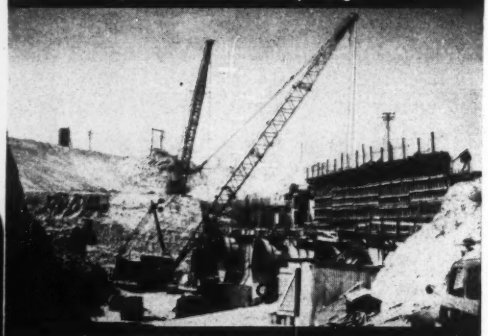

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(Continued from page 92)

Ill., **Rantoul**—Village, Village Hall, street paving program of unpaved streets, bit. surf. $350,000. Tracy & Pitzen, Paxton, consult. engrs. CD 4/2/51.

O., **Cleveland**—City, City Hall, Zone 14, widen E. 9 St. 5 ft. on each side from Lakeside Ave. to St. Clair Ave. and from Prospect to Woodland Aves. $200,000. John C. Wenrick, c/o owner, city comr. of Engr. CD 11/7.

▲ **UTAH**—State Road Comn., State Capitol, Salt Lake City.

Iron Co.—imprvt. 3.9 mi. State Rd. between Paragonah and Orton. $120,000.

Salt Lake Co.—imprvt. Redwood Rd. between 33 and 78 South Sts. $400,000.

Salt Lake and Davis Counties—constr. industrial road from Beck's Crossing westerly to Redwood Rd. and north to Cudahy Lane. $200,000.

San Juan Co.—imprvt. State Rd. from Monticello to Blanding 11½ mi. $300,000.

Sanpete Co.—imprvt. 10.6 mi. State Rd. between Salina and Millard County line. $230,000.

Summit Co.—6-mi. realignment of U.S. 40 from Kimball's Junction to Summit County line. $800,000.

6-mi. imprvt. U.S. 30, between Echo Junction and Emory. $500,000.

imprvt. 3.5 mi. State Rd. in Chalk Creek Canyon. $200,000.

Uintah Co.—imprv. 22 mi. State Rd. from Bonanza to U.S. 40. $400,000.

Imprv. 13.3 mi. of State Rd. between Frisco and Wah Wah Mountains. $220,000.

Imprv. 6.2 mi. U.S. 91 between Hot Springs and Five Points, $500,000. E. G. Johnson, c/o owner, state road engr.

▲ **ONTARIO**—Dpt. Highways, Toronto, Ont. (Prov. Govt.), Prescott—rebuilding No. 2 Highway into 4-lane controlled access road for Johnston 2 mi. east of Prescott to Quebec border about 70 miles. $5,000,000.

EARTHWORK, WATERWAYS

▲† **Kansas**—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., 9,160 ft. crest, 97 ft. high Webster Dam and reservoir, on South Fork Solomon River near Webster, Rocks Co. $14,037,000. CD 5/25/44.

▲† **Tennessee**—U. S. Eng., 303 Federal Office Bldg., Nashville, Zone 1, furnish 4 main unit turbines with nominal rating of 32,000 hp. at 40 ft. head, adjustable blade propeller type, Approx. $2,000,000; furnishing 4 main unit generators with 25,555 kva. full power rating, vertical shaft type, $2,000,000, for Old Hickory Lock and Dam, Cumberland River, near Carthage. CD 5/1/51.

AIRPORTS

▲† **Ala., Montgomery**—BUILDINGS—U. S. Eng., P. O. Box 1169, Mobile, Zone 7, plans by Pearson, Tittle & Narrows, First National Bank Bldg., additional buildings at Gunter Air Force Base, $1,000,000.

▲ † **Tex., Ellington Air Force Base**—BUILDINGS—U. S. Eng., 606 Santa Fe Bldg., Galveston, dining halls, $350,000; 3 story training and administrative headquarters structures, $500,000; warehousing, $750,000; hangar, $2[illegible],000; barracks, $1,750,000.

LATIN AMERICA

▲ **Brazil, Santos**—Port of Santos, Santos, plans hydroelectric plant expansion $10,000,000; warehousing and misc. constr. $4,000,000; modernization and enlargement of parts telephone services, $6,000,000; new docks, $5,500,000; new rail lines and shops, $12,000,000.

PUBLIC BUILDINGS

Ala., **Bessemer**—SCHOOL—City, City Hall, plans by Wilmot C. Douglas, 2922 7 Ave. Birmingham, Negro Elementary and Junior High School $750,000.

Calif., **Bakersfield**—CITY HALL—City, City Hall voted $950,000 bonds, city hall. CD 9/11.

▲ Calif., **Centerville**—HOSPITAL—Washington Township Hospital, Centerville, voted $1,250,000 bonds community hospital, Santos Rd., near here. Sorensen & Ellsworth, P. O. Box 1304, Carmel, archts. CD 8/20.

▲ Calif., **Corona**—SCHOOL—Corona Unified School Dist., Corona, defeated $1,532,062 bonds, schools. CD 9/4.

Calif., **Riverside**—JUVENILE HALL—Riverside Co., Court House, voted $774,000 bonds, Juvenile Hall. Milton H. Caughey, 9304 Santa Monica Blvd., Beverly Hills, archt. CD 11/26/51.

▲ Calif., **San Diego**—HALL OF JUSTICE—San Diego Co., Civil Center, defeated $10,000,000 bonds, Hall of Justice. CD 9/12.

▲ Calif., **San Francisco**—HOUSING—San Francisco Housing Auth., 440 Turk St., low-rent housing on Harbor Slope near Hunters Point. $1,800,000. CD 4/18/46.

Conn., **Mansfield**—SCHOOL—Town, Town Hall, plans by Russell F. Hills, 130 Washington St., brick, steel, concrete high school, $500,000.

Fla., **Sanford**—HOSPITAL—Seminole Co., voted bonds, hospital, $500,000.

Ind., **Richmond**—LIGHT PLANT—City of Richmond Electric Plant, new light plant, $750,000. Eral Beck, Richmond, plant mgr. CD 4/30/51.

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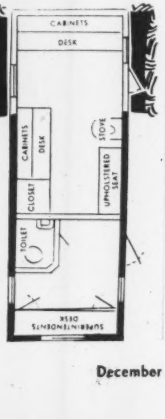

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▲ **Kan., Hutchinson**—SCHOOLS—School Dist. 1, Reno Co., voted $1,450,000 bonds Nov. 4, school, imprvs.

Kan., Salina—SCHOOL—School Dist. 1, Saline Co., voted $750,000 bonds Nov. 4, school addn. J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt.

▲ **Kan., Topeka**—OFFICE—State, c/o Sen. Riley W. MacGregor chn. Bldg. Comn., State House, plans by John A. Brown, state archt., State House and Chas. L. Marshall, consult. archt., Topeka, state office, $7,000,000. CD 12/31/48.

▲ **Ky., Fort Knox**—ARMORED SCHOOL—U. S. Eng., 830 W. Broadway, Louisville, plans by Otis & Grimes, Tyler Bldg., Louisville, Zone 2, 79,250 sq. ft. permanent non-combustible armored school, incl. utilities, site development, roads, walks, $2,000,000. CD CD 7/28/52.

▲ **Ky., Fort Knox**—ARMORED SCHOOL—U. S. Eng., 830 W. Broadway, Louisville, plans by Otis & Grimes, Tyler Bldg., Louisville, Zone 2, 79,250 sq. ft. permanent non-combustible armored school, incl. utilities, site development, roads, walks, $2,000,000. CD 7/28/52.

† **Md., Fort George C. Mead**—POST TELEPHONE EXCHANGE—U. S. Eng., 24 St. and Maryland Ave., Baltimore, plans by Fenton & Lichtig, 2023 Maryland Ave., Baltimore, post telephone exchange, $500,000. CD 5/16/51.

▲ **Mich., Alma**—HOSPITAL—R. B. Smith Memorial Hospital, Bd. Trustees, Alma, memorial hospital, Wright Ave. $1,125,000.

Minn., Crookston—SCHOOL—Bd. Educ., I. Swanson, clk., voted $550,000 bonds Nov. 4, 1 story, grade school, Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts.

Miss., Jackson—ARMORY—State Bldg. Comn., Woolfolk State Office Bldg., armory for Mississippi National Guard. $800,000.

Miss., Jackson—OFFICE—State Bldg. Comn., Woolfolk State Office Bldg., plans by J. T. Liddle, Barnett-Madden Bldg., office for Miss. State Highway Patrol, $600,000.

▲ **Mo., Jefferson City**—SCHOOLS—Bd. Educ. plans by Marshall & Brown, 1016 Baltimore St., Kansas City 6, Mo., schools, $1,000,000. CD 10/8.

▲ **Mo., St. Louis**—SCHOOLS—Bd. Educ., V. Harry Rhodes, comr. School Bldg., 911 Locust St., elementary school for negroes, Euclid Ave. near Fountain Ave., $1,000,000; elementary school for negroes in DeSoto-Carr Dist., $1,125,000; Ames Elementary School, $1,125,000; Dumas School, $800,000; Patrick Henry School, $1,250,000. CD 6/11/51.

Neb., Lincoln—HIGH SCHOOL—Bd. Educ., 720 S. 22 St., Northeast High School, $650,000. CD 5/7/51.

▲ **O., Columbus**—HOUSING—Columbus Metropolitan Housing Auth., 425 W. Rich St., housing, $15,000,000.

▲ **O., Columbus**—HOUSING—Columbus Metropolitan Housing Auth., 425 W. Rich St., plans by Wm. F. Breidenbach, 2143 Fairfax Rd., 500 unit East Side Housing, Woodward, Woodland, and Brentnell Aves. $5,000,000.

▲ **Tenn., Chattanooga**—CIVIC CENTER—City, City Hall, civic center, $2,000,000.

Tenn., Chattanooga—HOSPITAL WING—City, City Hall, plans by Bianculli & Palm, 501 Cherry St., West Wing Addn. to Baroness Erlanger Hospital, $750,000. CD 5/9/49.

▲ **Tex., Amarillo**—SCHOOLS—Amarillo Independent School Dist., Amarillo, Elementary Schools, No. 2, $450,000; No. 2, $375,000, No. 3, $550,000; high school addn. and remodeling, $750,000; new classrooms, existing elementary schools, $700,000; misc. classrooms to some existing schools, $450,000; Junior-High School, $2,000,000; gymnasium, $350,000; heating plant, $225,000. CD 3/10.

▲ **Tex., Austin**—HOSPITAL—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., plans by Jessen, Jessen, Millhouse & Greeven, 2816 N. Guadalupe St., 5 story concrete, masonry general hospital bldg., partially air-conditioned, $1,250,000. Wilson & Cottingham, Littlefield Bldg., Austin, and Zumwalt & Vinther, Mercantile Securities Bldg., Dallas, consult. engrs. CD 12/19/51.

▲ **Tex., Harlingen**—HOSPITAL—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by R. Newall Waters, Weslaco, 400-600 bed tuberculosis hospital, $2,500,000. Walter C. Moore, c/o owner engr., CD 9/23.

▲ **Tex., Houston**—WAREHOUSING—Port Comn., Navigation Dist., Wharf 13, cancelled bond election Dec. 13, warehousing, $1,600,000. CD 11/14.

▲ **Tex., Lufkin**—HIGH SCHOOL, etc.—Lufkin Independent School Dist., Lufkin, voted bonds Nov. 1, high school, $750,000, Wilbur Kent, 404 Perry Blvd., archt.; stadium addn., playgrounds, athletic courts, $125,000; Junior School addn., $325,000; shops and gymnasium, $300,000. CD 1/23/50.

▲ **Tex., Orange**—HOSPITAL—Orange Co., Orange, plans by J. M. Morris, Orange, 200-bed county hospital, $2,500,000. CD 4/26/51.

▲ **Tex., San Antonio**—HOSPITAL—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Phelps & DeWees & Simmons, 1501-6 Majestic Bldg., 500-bed tuberculosis Hospital to be known as South Texas Tuberculosis Hospital, $2,500,000, Walter C. Moore, c/o owner, superv. archt. CD 9/23.

† **Va., Warrenton**—OFFICERS' QUARTERS—U. S. Eng., 1st and Douglas Sts., Wash., D. C., non-commissioned officers' quarters, Vint Hill Farms, $100,000-$500,000.

(Continued on page 99)

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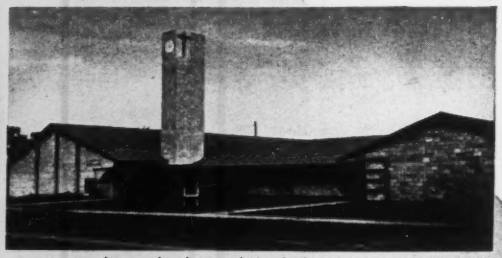
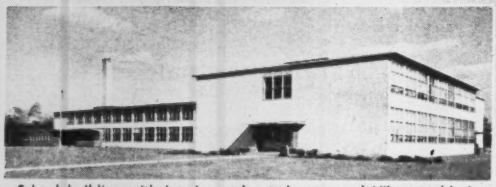


More and more churches are being built with Vibrapac block.



School building with interior and exterior exposed Vibrapac block.

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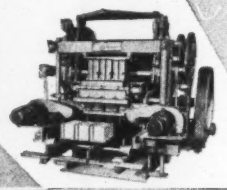

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(Continued from page 96)

▲ **Va., Williamsburg**—DINING HALL—State Hospital Bd., State Capitol, Richmond, dining hall at Eastern State Hospital. $1,020,000.

Wash., Moses Lake—HOSPITAL—Moses Lake Hospital Dist., Moses Lake, voted bonds, hospital, $620,000. H. A. Hovind, 1500 Westlake Ave. N., Seattle, and C. Martell-Fernwell Bldg., Spokane, archts. CD 10/13.

▲ **Wash., Yakima**—SCHOOL—School District 7, voted special levy, Junior High School, $1,000,000. J. W. Maloney & J. M. Whitney, Larson Bldg., archts. CD 9/5.

▲ **Ont., Barriefield**—HOSPITAL—Defence Constr. Ltd., 56 Lyon St., Ottawa, 4 story, 325-bed military hospital. $4,500,000.

▲ **Ont., Brantford**—HOUSING—Province of Ontario, Dpt. Planning & Development, Tonorto, housing in Echo Place Area, $1,500,000.

▲ **Ont., Toronto**—HOUSING—City, A. A. Lamport, mayor, City Hall, 624 apartment addn., in south section of Regent Park Housing Auth., with 6 story units. $5,000,000.

COMMERCIAL BUILDINGS

▲ **Ala., Birmingham**—COLLEGE BUILDINGS—Howard College, 7725 2 Ave. South, plans by Van Kuren, Davis & Co., 3004 7 Ave. S.; college group of buildings. $8,000,000. CD 11/9/51.

▲ **Calif., Compton**—DWELLINGS—Phoenix Constr. Co., 642 S. Western Ave., Los Angeles, plans by L. C. Major & Assocs., 511 N. La Cienega Blvd., Los Angeles, 150 frame, stucco dwellings, Olive and Avalon Blvds. $1,000,000.

▲ **D. C., Wash.**—STORE, etc.—John McShain, Inc., 1501 N. Arlington Ridge Rd., Arlington, Va., plans by Edwin Weihe, 927 15 St. N. W., 12 story, brick, stone, concrete store and office bldg., 13 and Pennsylvania Ave. N. W., $1,500,000. Jacob Feld, 60 E. 23 St., New York, N. Y., consult. engr.

▲ **D. C., Wash.**—DEPARTMENT STORE—Sears, Roebuck & Co., W. Arthington and S. Homan Sts.; Chicago, Ill., plans by Ballenger & Co., 121 N. Broad St., Phila., Pa., department store, Alabama and Naylor Sts. $2,700,000.

▲ **Ga., Macon**—LAW SCHOOL—Mercer University, Macon, law school, $2,700,000. CD 6/20.

▲ **Ill., Hinsdale**—DIAL EXCHANGE—Illinois Bell Telephone Co., 212 W. Washington St., Chicago, Zone 6, plans by Holabird Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, dial exchange bldg., $1,000,000.

Me., Millinocket—HOSPITAL—Millinocket Community Hospital, Main Ave., plans by Crowell, Lancaster Higgins, 6 State St., Bangor, 1 story, masonry hospital, $600,000. CD 2/20/52.

▲ **Mo., St. Louis County**—SCHOOL—The Principia Lower & Upper Schools, c/o trustees of Principia Corp., 5539 Page Blvd., St. Louis, Zone 12, plans by W. L. Risley, 220 S. Westmoreland Ave., Los Angeles, Calif., 8 school bldgs. on 388 acre tract on Mason Rd. between Clayton Rd. and Daniel Boone Hy., $5,000,000. CD 3/27/47.

▲ **Neb., Omaha**—HOSPITAL—Clarkson Hospital, 26 St. and Dewey Ave., hospital addn., imprvs. $1,000,000.

▲ **N. M., Albuquerque**—HOTEL—Homer G. Maxey & Assoc., Lubbock, Tex., plans by Charles E. Armstrong, Majestic Bldg., Fort Worth, Tex., 5 story, 260-room rein.-con. hotel, with patio and parking space, Oak and Central Sts. $2,000,000.

Tenn., Chattanooga—CHURCH—Lookout Mountain Presbyterian Church, 316 N. Bragg Ave., Lookout Mountain, Chattanooga, church addn. $500,000.

▲ **Tex., Fort Sam Houston**—HOUSING—Federal Housing Admin., 610 S. Flores St., San Antonio, construct, manage, finance, 400 Wherry Housing Units, near Bel Mead Addn. across Military Hy. $3,000,000. CD 8/11/50.

Tex., Fort Worth—YOUTH—First Methodist Church Congregation, 5 and Florence Sts., plans by A. C. McAdams, Majestic Bldg., youth bldg. $500,000.

▲ **Tex., Houston**—CHURCH BLDGS., etc.—Our Lady of Mt. Carmel, 1111 Pierce St., plans by Golemon & Rolfe, 5100 Travis St., parish hall, $400,000; elementary school, $575,000; church, $400,000; dormitory, $550,000; co-educational high school, $1,000,000; electric lighting sys. $75,000. CD 11/11.

▲ **Va., Alexandria**—HOUSES—Colonial Investment Corp., 201 S. Washington St., 631 row houses. $6,000,000. E. S. Holland, Jr., 527 King St., consult. engr.

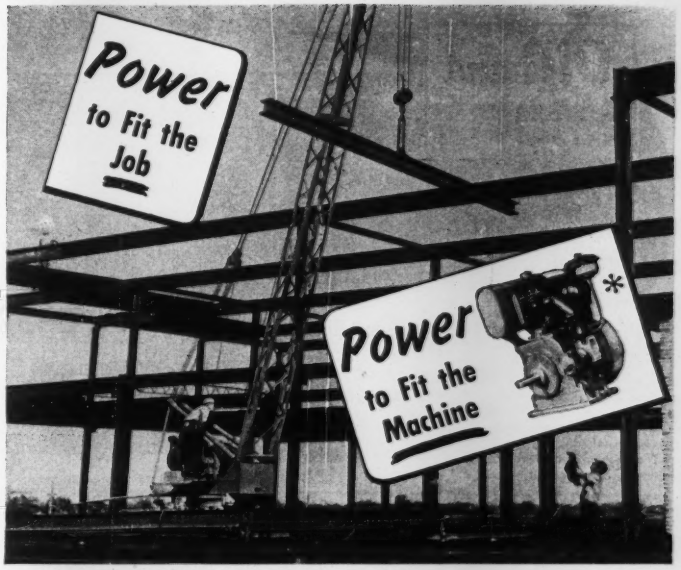
Wash., Seattle—HOUSES—Lovell Constr. Co., 12510 15 Ave. N.E., plans by R. L. Durham & Assocs., 100 Denny Way 45 houses in Will Rogers Addn. at 15 Ave. N.E. and E. 135 St. $500,000.

▲ **B. C., Vancouver**—DEPARTMENT STORE—Simpson-Sears, Ltd., 196 Yonge St., Toronto, Ont. retail department store in Burnaby Suburb, $4,000,000. CD 8/12.

▲ **Man., Winnipeg**—SHOPPING CENTER—Greater Winnipeg Shopping Centre Ltd., Winnipeg, Man., D. B. Landers, genl. mgr., Edmonton, Alta., plans by C. Callebaut, Brussels, Belgium, shopping centre, + incl. 135 retail stores, 1500 seat auditorium, 3 apartment blocks, 75 room hotel, community bldgs., in Old Kildonan District, Winnipeg suburb, $18,000,000.

▲ **Man., Winnipeg**—HOMES—Great West Development Co., Winnipeg, plans by Green, Blankstein-Russell & Assocs., 222 Osborne St. N., 350 homes, St. James Area of Greater Winnipeg, $3,600,000.

▲ **Ont., Toronto**—APARTMENT BLOCK—International Realty Co., 190 Church St., plans by P. Caspari, 496



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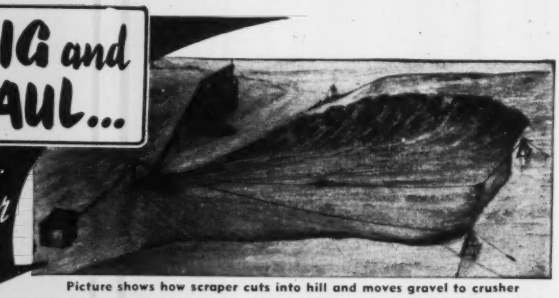

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Church St., concrete, steel, brick, stone apartment block, Alexander and Church Sts. $5,000,000.

▲ Sask., Regina—HOUSING—Cairns Constr. Co., 2136 Queen St., Regina, housing in Lakeview subdivision. Approx. $1,000,000.

INDUSTRIAL BUILDINGS

▲ Ga., Atlanta—WAREHOUSES—Atlantic Coast Line R. R. Co., R. L. Groover, ch. engr., Wilmington, N. C., warehouses, $5,000,000.

▲ Ga., Savannah—WAREHOUSE—Georgia Refrigerated Warehouses, c/o Robert & Co. Assocs., archts., 96 Poplar St. N.W., Atlanta, cold storage warehouse $1,200,000.

▲ Ind., New Albany—SUB-STATION—Public Service Corp. of Indiana Inc., 1000 Main St., Plainfield, sub-station, $1,500,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, 3, Ill., consult. engrs.

Kan., Kansas City—PLANT—Swift & Co., 4115 S. Packers St., Chicago, Ill., branch meat packing plant addn. $590,000. J. P. McShane, c/o owner, gen. super. engr.

▲ Mo., Kansas City—PLANT, etc.—Hall Bros., c/o Joyce C. Hall, pres., 25 and Grand Sts., plans by Welton, Becket & Assoc., 1114 Grand Ave., plant and office for Hallmark Cards, on 7½ acre tract south 25, McGee to Locust Sts., bridge to present plant 25 acres. $6,000,000.

▲ O., Columbus—PLANTS—Hanna Paint Mfg. Co., 95 W. Long St., 1 and 3 story brick, concrete, steel plants, 100,000 sq. ft. floor space. $1,000,000.

O., Rocky River—SUB-STATION—Cleveland Electric Illuminating Co., Public Square, Cleveland, Zone 1, electric power sub-station, 20550 Center Ridge Rd. $500,000.

▲ Ore., The Dalles—PLANT—Harvey Machine Co., Inc., 19200 S. Western Ave., Torrance, Calif., Defence Production Admin. Authority sought for aluminum reduction plant. $45,000,000. Lawrence Harvey, c/o owner, engr.

▲ Tex., Dallas—GENERATOR PLANT—Dallas Power & Light Co., Dallas Power & Light Bldg., 165,000 kw. turbine generator plant unit, Mountain Creek area. $16,100,000.

▲ Tex., Orange—PLANT—Allied Chemical & Dye Corp., Orange, addnl. chemical plant units. $16,500,000.

▲ Va., Hopewell—PLANT—Allied Chemical & Dye Corp., (Nitrogen Div.), 61 Broadway, New York, N. Y., synthetic fibre plant. Company has option on site near here at confluence James and Appomattox Rivers. $23,000,000.

UNCLASSIFIED

Ark., Little Rock—TELEVISION STATION—Great Plains Television Properties, c/o U. S. Corp. of Illinois, 33 North La Salle St., Chicago, 2, Ill., television station, $247,000. Jansky & Bailey, National Press Bldg., Wash., D. C., consult. engrs.

Ark., Little Rock—TELEVISION STATION—Little Rock Telecasters, P.O. Box 420, Wichita Falls, Kan., television station, $211,500. William L. Foss, Inc., 927 15 St. N.W., Wash., D. C., consult. engr. CD 10/8.

Calif., Richmond—OFF STREET PARKING SITE—City, City Hall, voted $500,000 bonds, off street parking site. CD 9/10.

Calif., San Diego—TELEVISION STATION—Charles E. Salik (KCBQ), P.O. Box 1629, Hotel Manor, Zone 12, television station, $496,000. Robert M. Silliman, 1011 New Hampshire Ave., Wash., D. C., consult. engr.

Calif., San Jose—TELEVISION STATION—San Jose Television Broadcasting Co., P.O. Box 995, San Jose television station, $640,000. E. C. Page, Bond Bldg., Wash., D. C., consult. engrs.

Fla., Jacksonville—BASEBALL STADIUM—City, City Hall, baseball stadium, $950,000. CD 1/12/45.

Fla., Jacksonville — TELEVISION STATION — Florida-Georgia Television Co., 1746 E. Adams St., television station, $645,000. Weldon & Carr, 1605 Connecticut Ave. N.W., Wash., D. C., consult. engrs.

† Md., Aberdeen Proving Ground—AIRFIELD IMPRVS.—U. S. Eng., 24 St. and Maryland Ave., Baltimore, airfield imprvs., extens. $3,000,000, Whiteside, Foster, Damon & Doane, Inc., Pennsylvania R.R. Bldg., Wilmington, Del., engr.

Miss., Jackson — TELEVISION STATION — Mississippi Publishers Assoc., P.O. Box 427, television station, $404,000, Raymond M. Wilmotte, 1469 Church St. N.W., Wash., D. C., consult. engr.

Neb., Hastings—TELEVISION STATION—Strand Amusement Co., Strand Theatre Bldg., television station, $257,000. Vandivere, Cohen & Wearn, 1420 New York Ave. N.W., Wash., D. C., consult. engr.

N. C., Raleigh—TELEVISION STATION—Sir Walter Television & Broadcasting Co., 204 W. 6 St., Erie, Pa., television station, $296,000. William L. Foss, Inc., 927 15 St., N. W. Wash., D. C., consult. engr.

O., Warren—TELEVISION STATION—The Warren Tribune Radio Station, Inc., (WHHH), 108 Main St., television station, $484,000. John Creutz, Bond Bldg., Wash., D. C., consult. engr.

Okla., Altus—ELECTRIC DISTRIBUTION SYSTEM—City, voted bonds Nov. 11, rebuilding electric distr. sys. $390,000. CD 10/14.

(Continued on page 103)

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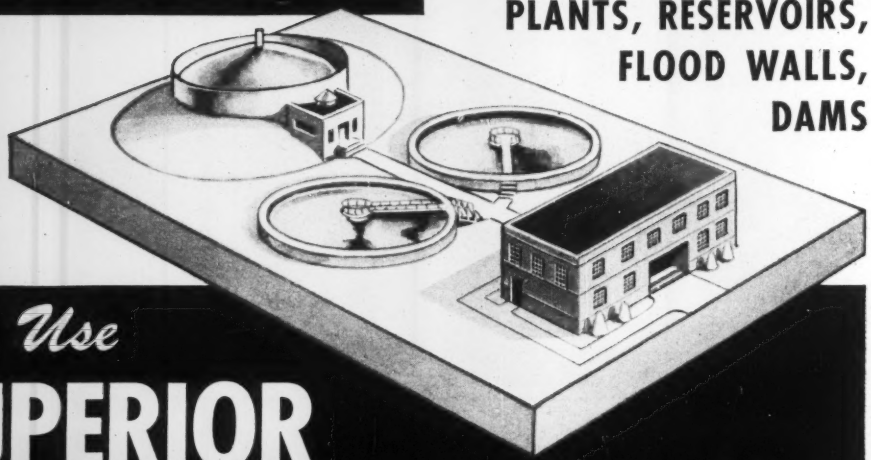

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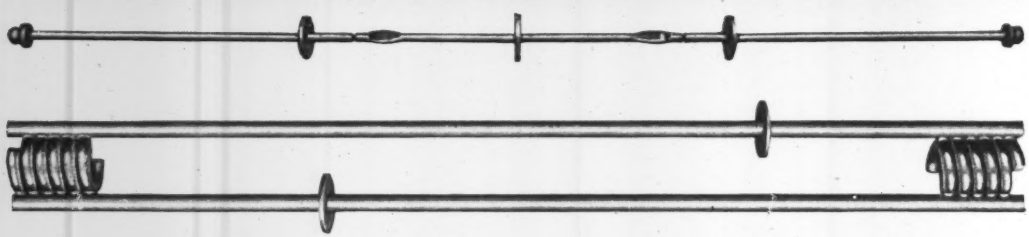

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(Continued from page 100)

Okla., Tulsa—TELEVISION STATION—All-Oklahoma Broadcasting Co., (KRMG), 311 S. Denver Ave., television station. $719,000. McIntosh & Inglis, Wyatt Bldg., Wash., D. C., consult. engrs.

Ore., Portland—TELEVISION STATION—Mount Hood Radio & Television Broadcasting Corp. (KOIN), New Heatman Hotel television station. $666,000. E. C. Page, Bond Bldg., Wash., D. C., consult. engr.

Pa., Hazleton—TELEVISION STATION—Hazleton Broadcasting Co., (WAZL), 708 Hazleton Natl. Bank Bldg., television station, $227,000. James C. McNary, Natl. Press Bldg., Wash., D. C., consult. engr.

R. I., Providence—TELEVISION STATION—New England Television Co. of Rhode Island, 514 Industrial Trust Bldg., Zone 3, television station, $291,000. J. Gordon Keyworth, Williamstown, Mass., consult. engr.

▲ **Tennessee**—NATURAL GAS LINE—East Tennessee Natural Gas Co., Kingston Pike, Knoxville, 100 mi. 16 in. natural gas lines, Knoxville to Bristol. $5,800,000.

Tenn., Chattanooga—TELEVISION STATION—Tom Potter, 1032 Life of America Bldg., Dallas, Tex., television station, $313,000. John H. Mullaney, 1757 K St., N.W., Wash., D. C., consult. engr.

Tenn., Knoxville—TELEVISION STATION—W. R. Tuley, 208 S. E. Riverside Dr., Evansville 8, Ind., television station, $235,000. Harold B. Rothrock, Redford, Ind. consult. engr.

Tenn., Knoxville—TELEVISION STATION—WKGN, Inc., Park Natl. Bank Bldg., television station, $414,000. Millard M. Garrison, 1519 Connecticut Ave. N.W., Wash., D. C., consult. engr.

Tenn., Nashville—TELEVISION STATION—Life & Casualty Insurance Co. of Tenn. (WLAC), 159 Fourth Ave. N., television station, $781,000. A. Earl Cullum, Jr., 4710 Lemmon Ave., Dallas, Tex., consult. engr.

▲ **Texas**—OIL PIPE LINE—Texas-Gulf Pipe Line Co., Abilene, crude oil pipe line, Abilene area, $750,000; Blum area, $425,000; Trinity area, $486,000. 12/4/52.

Tex., Austin—TELEVISION STATION—Tom Potter, 1032 Life of America Bldg., Dallas, television station, $732,000. E. C. Page, Bond Bldg., Wash., D. C., consult. engr.

Tex., Beaumont—TELEVISION STATION—Tom Potter, 1032 Life of America Bldg., Dallas, television station, $300,000. E. C. Page, Bond Bldg., Wash., D. C., consult. engr.

Tex., Corpus Christi—TELEVISION STATION—H. L. Hunt, 4009 Lawther Dr., Dallas, television station, $254,000. Weldon & Carr, 1605 Connecticut Ave. N.W., Wash., D. C., consult. engrs.

Tex., Corpus Christi—TELEVISION STATION—Superior Television Co., 2727 Agnes St., television station, $496,000. George P. Adair, 1833 M St., Wash., D. C., consult. engr.

Tex., El Paso—TELEVISION STATION—Franklin Broadcasting Co., 14410 Valley Vista Dr., Sherman Oaks, Calif., television station, $247,000. Bernard Assoc., 5010 W. Sunset St., Los Angeles, Calif., consult. engrs.

▲ **Tex., Houston**—WHARVES, etc.—Port Comm., Navigation Dist., Wharf 13, cancelled bond election Dec. 13, constr. Wharf No. 1, $1,000,000; Wharf No. 2, $1,250,000; Wharf No. 3, $750,000; Wharf No. 4, $875,000; Wharf No. 5, $1,100,000; Wharf No. 6, $950,000; Wharf No. 7, $1,175,000; railway storage yards, $970,000; lighting sys. $75,000; gas lines, $65,000. CD 11/14.

Tex., McAllen—TELEVISION STATION—Texas State Network, Inc., (KRIO), 1201 W. Lancaster Ave., Fort Worth, television station, $297,000. Commercial Radio Equipment Co., 1319 F St. N.W., Wash., D. C. consult. engrs.

Tex., Waco—TELEVISION STATION—Central Texas Television Co., c/o R. K. Prescott, Life of America Bldg., Dallas, television station, $225,000. Weldon & Carr, 1605 Connecticut Ave. N.W., Wash., D. C., consult. engrs.

Wash., Seattle—TELEVISION STATION—Mount Rainier Radio & Television Broadcasting Corp. (KJR), Skinner Bldg., television station, $645,000. E. C. Page, Bond Bldg., Wash., D. C., consult. engr.

W. Va., Charleston—TELEVISION STATION—Joe L. Smith, Jr., Inc. (WKNA) WJLS Bldg., Main and Kanawha Sts., Beckley, television station, $326,000. A. D. Ring & Co., Munsey Bldg., Wash., D. C., consult. engrs.

Wis., Madison—TELEVISION STATION—Monona Broadcasting Co. (WKOW), 215 W. Washington Ave., Madison, Zone 3, television station, $319,000. Walter F. Kean, 1 Riverside Rd., Riverside, Ill., consult. engr.

Wis., Milwaukee—TELEVISION STATION—Milwaukee Area Telecasting Corp., 411 E. Mason St., television station, $658,000. Weldon & Carr, 160 Connecticut Ave. N.W., Wash., D. C., consult. engrs.

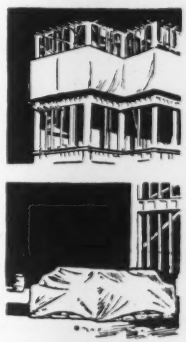
Wyo., Cheyenne—TELEVISION STATION—Frontier Broadcasting Co. (KFBC) Plains Hotel, Cheyenne, television station, $238,000. Robert C. Pfannenschmid, c/o owner, consult. engr.

▲ **B. C., Vancouver**—TELEVISION ANTENNA, etc.—Famous Players Canadian Corp., Ltd., Royal Bank Bldg., Toronto, Ont., community television antenna and coaxial cable sys. for coin telemeter television service, $10,000,000.

▲ **Que., Montreal**—SUBWAY SYSTEM—Montreal Transportation Comn., 159 W. Craig St., subway system, $65,000,000. De Leuw, Cather & Co., 150 N. Wacker Dr., Chicago, Ill., U.S.A., engrs. CD 12/1/43.

▲ **Ont., Sarnia**—PIERS, etc.—Dpt. P. Wks., Hunter Bldg., Ottawa, 3 piers, combined length 4,850 ft. into Sarnia Bay from govt. docks each pier 300 ft. wide with railway spur to serve 12 large or 33 small ships, $15,000,000.

keep out water and . . . much more



Webb Flamefoil canvas coverings keep out fire . . . keep out weather damage where you store equipment . . . keep out mildew and dust from machinery and tools. They're made from top quality canvas of any weight. Hems are double-lock stitched. Heavy reinforcements at all points of abrasion and strain. Sturdy grommets provide bulldog grip.

You can have this economy and protection in a Webb Flamefoil-treated tarp of any size, any specifications for every protective use. Also available—windbreakers with plastic windows for winter weather operations. Write for information and prices.

WEBB MANUFACTURING COMPANY
2938 N. 4th St., Philadelphia 33, Pa.

"Gunite" . . . . . the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

EVERETT—Hewitt Avenue was built in 1923. Photos taken in 1924 and 1951.

LONGVIEW—Main St. was built in 1924. Photos were taken 1924, 1951.

TACOMA—S. 38th St. at Fawcett Avenue was built in 1924. Photos were taken 1924, 1951.

Here today—*and still here tomorrow*

that's the story of CONCRETE streets in western Washington

Motorists and taxpayers in western Washington can be well satisfied with the long service records of their concrete streets. Many of the old concrete pavements in this area have served dependably, economically for a quarter of a century or longer and are still good for many more years of ***low-annual-cost*** service.

Outstanding service records like these are typical of concrete streets from coast to coast. These streets go on serving today despite weights and volumes of traffic far in excess of those for which they were designed originally. They are proof that concrete streets are truly "here today—*and still here tomorrow!*"

Today concrete streets can be built even better because of improvements in engineering design, in materials and in construction methods. Concrete pavements have moderate first cost, low maintenance cost and long life. This results in ***low-annual-cost*** service that cannot be matched by any other paving material.

Examples shown here do not include Seattle, which has more square yards of concrete streets per capita than any large city in America, and which has many quarter-century streets.

PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
January Materials, and Labor Prices will appear in January 8, 1953 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand	grav.	Lt. wgt. agg.
Atlanta	$3.81	$3.50	3.30	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.19	$0.19	$11.99
Baltimore	3.76	3.45	3.38	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.81	....	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	9.85
Boston	4.01	3.69	3.81	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.20	.22a	11.50h
Chicago	3.33	3.02	....	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.44/11.94
Cincinnati	3.31	3.40	3.40	2.00‡c	2.14‡c	2.14‡c	2.44‡e	2.44‡e	....	....	.21	.225a	11.45
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.65	3.81a	3.81a	2.95‡	2.95‡	....	.23	12.40d
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.89	3.59	3.89	1.85	2.00	1.20	....	....	....	....	.22	.255a	10.50
Detroit	3.27	3.00	3.03	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.75f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	....	....	.18ag	.23e	11.60h
Los Angeles	4.00a	3.60a	4.72	1.95a	2.20a	1.95a	1.95a	2.08a	....	....	.125/m	.23m	10.43ih
Minneapolis	3.80d	3.49d	3.41	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.21ik	....	12.15/i
Montreal	3.01ac	2.86ac	....	3.00	3.00	2.25	1.55ij	1.85ij	....	....	.20	.20a	9.65ah
New Orleans	3.20	3.02	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.86	3.55	3.43	2.35bk	2.35bk	1.60bk	2.50bl	2.80bl	....	....	....	....	11.80am
Philadelphia	3.43/3.82‡	3.12/3.49‡	3.43/3.48‡	2.75‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	3.32	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	12.50
St. Louis	3.27/3.48b	2.84/3.10b	3.05/3.22	2.90am	2.70am	2.30/2.70am	1.70j	1.70j	1.50	1.50	.215	.215es	10.75
San Francisco	3.36	2.96	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.23el	10.70c
Seattle	3.75a	3.25a	4.50n	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	11.40j

‡Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: a Subj. to 10¢ dis. b Less 2% for cash. c CL price dealers comm. not incl. d Dealers sell only LCL. h LCL.
SAND, GRAVEL, STONE & SLAG: a Truck lots. b Per cu. yd. c 5 tons or more. e ¾". f Pea gravel. g Less 5% for cash. h Less than 5 tons. i Sales tax incl. j F.o.b. quarry. k Barge lots asd. l F.o.b. scow Hudson river. m Less 2% for cash. n F.o.b. scow.
CONCRETE BLOCK: a Cinder. b Waylite. c Haydite. d Celocrete. e 5⅓ x 8 x 12 in. f 8 x 4 x 16. g F.o.b. truck at job. i Less 2% for cash. j Less 1% for cash. k 8x8x18. l F.o.b. plant San Rafael. m F.o.b. yard.
READY MIXED CONCRETE: a 5 cu. yds. or over del. Man. b 25 cu. yds. or more. c 10–100 cu. brackets. d 1–3 mi. zone. e 2,000 lb concr. f 2500 lb. comp. h Less 50¢ for cash. i 5% off for cash. j 2% off for cash. k Sales tax included. l 1:2½:4. m F.o.b. yard. n Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.60†	Buffington, Ind.	$2.55†	Steelton, Minn.	$2.65†	Muskegon, Mich.	$2.70†	Toledo, O.	$2.60†
Clinchfield, Ga.	2.60†	Independence, Kan.	2.50†	Leeds, Ala.	2.45†	Saginaw, Mich.	2.60†	Milwaukee, Wis.	2.75†
Kingsport, Tenn.	2.60†	Hannibal, Mo.	2.55†	Duluth, Minn.	2.65†	Wyandotte, Mich.	2.60†	Green Bay, Wis.	2.75†
West Des Moines, Iowa.	2.65†	Northampton, Pa.	2.60†	Hudson, N. Y.	2.60†	Buffalo, N. Y.	2.60†	Ironton, O.	2.60†
Nazareth, Pa.	2.60†	Universal, Pa.	2.65†	Alpena, Mich.	2.50†	Oswego, N. Y.	2.75†	Montreal City	2.61
Bath, Pa.	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich.	2.60†	Cleveland, O.	2.60†	W. Winfield, Pa.	2.65†

†*Prices to hold for fourth quarter of* 1952.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	$26.00	$33.25	$0.1975	$0.339	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	58.00‡	....	22.00i	.....	.0809i	0.15i	.09iw	.17iw	.09i	.09i	0.12i
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	35.50a	22.00as	35.50as	.....	.....	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bs	29.25bs	.0875bw	.16bw	.075b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	55.00d	4.27g	23.00t	.....	23.00t	....	.1025tw	.194w	....	.1115t	.194t
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.. ..	26.82	....	26.82s	.....	.117w	.....	.0925	.....	.2811r
Kansas City	e	e	e	16.50cl	...	.055	.....	.07rw	.....	.0585e	0.435	.....
Los Angeles	e	----	e	15.50dmz	...	15.50dsz	....	17.00dz	.....	16.00dv	.0825j	.1725j
Minneapolis	.....	----	2.97h	25.07	....	24.07	.....	.0894w	.....	.0794	.0935	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.183n	16.30nu	18.80nu	.132n	.184nz	.225nz
New Orleans	.....	----	.....	17.50e	....o	17.50es	.....o	.085ew	.....o	.085p	.085	.....
New York	.....	.....	3.12/	26.26q	47.59q	25.26st	46.58st	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	....	.....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.20	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	18.68/	.....	.1698	.....	.0865/.089w	.....	0.15	.0975	.....
San Francisco	.....	55.00e	.....	17.00g	32.50gp	17.10gks	32.50gks	19.00q	36.50q	17.50e	.085y	.....
Seattle	.....	.....	.....	17.00h	37.50h	16.25hs	.....	19.50h	...	18.50hs	.095h	.105hr

‡ Delivered.
PAVING BRICK & BLOCK: a CL. b 3½ x 4 x 8½. c 2½ x 8½ x 4. d LCL, truck deliveries. e Not used. f 2" interior 6# treat. g 3". h 8# treat. i 3 x 3½ x 8½.
ASPHALTS: a Price at plant, Everett, Mass. b F.o.b. refinery, Lockport, Ill. c F.o.b. Sugar Creek, Mo. d F.o.b. refinery, El Segunda. e F.o.b. Baton Rouge. f F.o.b. Wood River or Roxana, Ill. g F.o.b. Richmond, Calif. h F.o.b. Martinez. i F.o.b. refinery, Baltimore. j F.o.b. refinery, Inglewood, Calif. k 50–110 penetr. l Less than 100 penetr. m 40–80 penetr. n Tax incl. o Drums not avail. p Shipped in steel bbl. q 40–85 penetr. r In customer's drums. s Shipped in drums, per drum. t 85–300 penetr. u Per 100 gal. v Per ton. w Per gal. x Also tank trucks. y F.o.b. Oakland. z F.o.b. refinery, Cleveland. A F.o.b. Norco, La.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.85	$3.90	$3.95	$7.85	....	$75.50	$85.00	Not	$4.925	$6.65	$4.775	....
Chicago Area	3.85	3.90	3.95	7.85	$4.675	75.50	85.00	avail-	4.925	6.65	4.775	....
Pittsburgh Area	3.85	3.90	3.95	7.85	4.675	75.50	85.00	able	4.925	6.65	4.775	$9.85
Buffalo Area	3.85	3.90	3.95	7.75	4.675	75.50	85.00	....	4.925	6.65	4.775	9.85
Cleveland	....	....	3.95	7.85	4.675	.....	.....	....	....	6.65	....	9.85
Youngstown Area	....	....	3.95	....	....	.....	.....	....	....		....	....
Geneva	3.85	3.90	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	....	....	....	.....	.....	....	....	6.65	....	....
Pueblo	3.85	3.90	3.95	....	....	75.50	85.00	....	4.925	6.65	4.775	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price *u* 5 tons to carload lot *b* New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATH *k* Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING *dd* Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$7.31	$7.11	$7.11	$.025	$...	$36.00‡	$40.00‡			
Baltimore	6.47	6.81*f*	....	....	....	42.00	45.00			
Birmingham	5.95	5.80	5.80	.05	.15	47.00*p*	52.00*p*			
Boston	6.56*a*	6.38	6.38	....	....	39.50	43.50			
Chicago	5.95	5.33*ff*	5.33*ff*	.0625	....	46.00*C*	51.00*C*			
Cincinnati	6.42*ak*	6.63*r*	....	....	.15	37.50*zee*	41.00*zee*			
Cleveland	6.28	5.31*r*	....	....	....	37.50‡	41.00‡			
Dallas	9.05	7.25	7.25	....	....	49.00	52.00			
Denver	7.55	7.50*c*	....	....	....	50.00*s*	62.00*qs*			
Detroit	6.42	6.24*n*	....	....	.20	53.00	58.00			
Kansas City	6.70*nn*	6.97	....	....	....	35.50	39.00			
Los Angeles	6.89*fkk*	6.82*g*	....	....	....	48.00	54.00*kk*			
Minneapolis	6.51*kk*	7.40*ll*	7.40*ll*	....	....	36.00	39.50			
Montreal	6.65*iB*/6.95*i*	4.90*i*	4.90*g*	....	....	51.00*k*	57.00*k*			
New Orleans	....	5.80*ok*	....	.05	....	66.00	66.00			
New York	6.77	6.50	6.50	....	.30	38.50*st*	42.50*st*			
Philadelphia	6.42	6.67	....	....	....	39.50‡	43.50‡			
Pittsburgh	5.80/6.00	5.80/6.00	....	....	.10	36.60	38.60			
St. Louis	6.35*a*	5.75*c*	5.75*c*	....	....	47.00*aa*	53.00*aa*			
San Francisco	7.12	6.50*l*	....	....	....	40.50	43.50			
Seattle	4.50*e*	5.80*el*	....	....	....	57.00*smm*	47.00*smmz*			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.81 — F.o.b. Mill: Monessen, Penn., $2.91

A.P.M.* Joliet, Illinois, Donora, Penn., $1.96 — F.o.b. Mill: Monessen, Penn., $2.03

A.P.M.* Joliet, Illinois, Donora, Penn., $2.95 — F.o.b. Mill: Monessen, Penn., $3.05

* At Producing Mill.

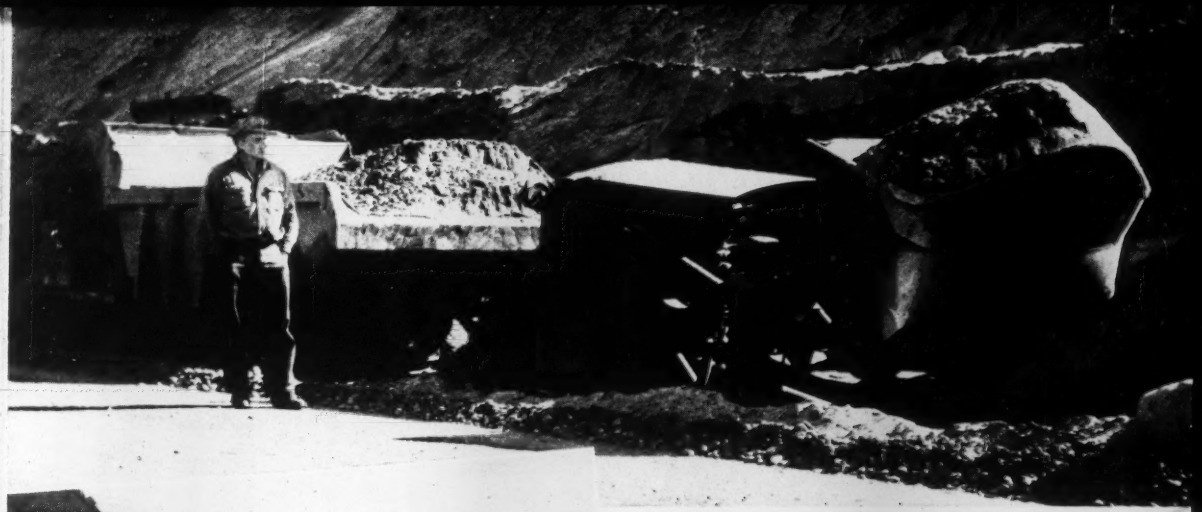
‡ Delivered. *b* 1–5 tons, add 35¢. Less than 1 ton, add 50¢. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivered in free delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial any Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq.yd. *n* 5–10 tons. *o* 5 to 20 tons base. *p* Del. of 500 sq. yd. or more. *q* Std. ribbed, 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra — 1 in., 1¼ in., 1½ in., 10¢. ¾ in., ¼ in., 15¢. ⅝ in., 25¢. ½ in., 50¢. ⅜ in., 80¢. ¼ in. $1.90. *v* 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales. *hh* 10,000–19,999 lbs. *kk* 1" ribbed. *ll* 5 to 8 tons, f.o.b. city. *mm* 2% off for cash. *nn* 1–5 tons. *qq* 10 tons to CL. *a* 2000–9999 lbs. *A.* Amer. struct'l shapes. *B.* Canadian shapes. *C.* Deliv to contractor.

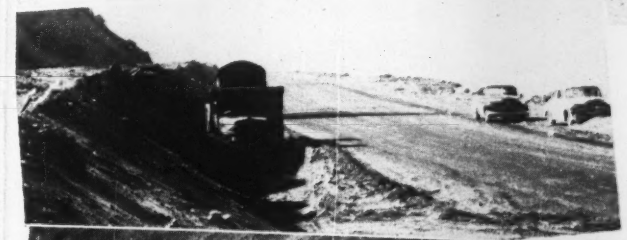
PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

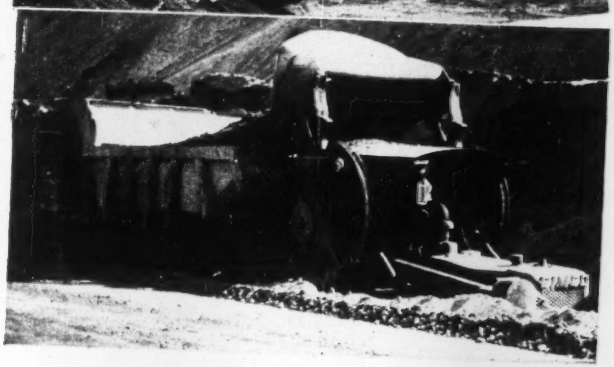
	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in. *a*	ASBESTOS CEMENT PIPE per lin. ft., f.o.b. city 6" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.	*WROUGHT STEEL PIPE (Full standard weight)							
Atlanta	$101.00	$1.44	$2.42	....	....	....	....	....	....	....	....								
Baltimore	109.00	1.46	2.42	.546	1.053	4.275*A*	11.3775*A*	178.20	274.80	.90	2.45								
Birmingham	93.00	1.44	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25*m*	2.75*m*								
Boston	113.00	1.46	2.20	.553*uzz*	1.0665*uzy*	4.41*uzy*	11.90*uzy*	187.80*x*	289.20*x*	1.55*mq*	3.80*mq*	3½ to 6 in.	Lap Weld‡	Galv. %	15	25a			
Chicago	107.00	1.44	2.20	.70*m*	1.35*m*	5.62*m*	13.50*m*	150.00‡	270.00‡	80	2.80		Butt Weld‡	Galv. %	10	25a			
Cincinnati	106.00	1.46	2.29	.567*y*	1.093*y*	4.32*y*	11.175*y*	164.40	254.10	.75*m*	2.80*m*			Black %	33	0a	34.75*c*	16.0*c*	
Cleveland	108.00	1.46	2.29	.40*z*	.945*z*	3.96*z*	10.66*z*	158.00*m*	245.65*m*	.75*m*	2.95*m*			Galv. %	26	25	33.0*a*	13.75*a*	
Dallas	112.00	1.46	2.54	.436	.822	3.234*b*	9.17*b*	.....	.....	49	1.60				22	75			
Denver	115.00	1.55	2.54	.43*dd*	.74*dd*	3.18*dd*	....	.....	.....	.74*m*	2.50*m*				29	75	25.75*b*	11.75*b*	
Detroit	108.00	1.46	2.29	.72	1.39	5.58	14.91	240.00*m*	360.00*m*	80	3.20	2½ & 3 in.		Black %	40	0	21.75	9.75	
Kansas City	113.00	1.46	2.29	.515	.92	3.64	9.20	216.70	465.00	.70*g*	3.00*g*		Butt Weld‡	Galv. %	40	0	22.75	10.25*b*	
Los Angeles	124.00	1.53	2.29	.51*f*	1.07*f*	5.24*f*	13.06*f*	228.20*f*	348.90*f*	.95	2.70*ff*				38	0	29.75	14.75*b*	
Minneapolis*	112.00	1.50	2.42	.72*mo*	1.32*mo*	5.32*mo*	....	.....	.....	1.36*h*	3.87*h*			Black %	40	0	20.75	9.75	
Montreal	115.00	....	....	.85*z*	1.50*z*	5.25*z*	....	.....	.....	1.17*j*	3.11*j*			Galv. %	40	0	20.75	9.75*b*	
New Orleans	101.50	1.44	2.42	.513	.93	5.15	....	265.00*bb*	455.00*bb*	.65	2.29				40	0	21.75	11.75*b*	
New York	111.35	1.46	2.20	.64	1.21	4.86	12.71	.....	.....	1.15	2.50				40	0	21.75	14.75*b*	
Philadelphia	110.00	1.44	2.20	.65	1.25	4.95*A*	12.65*A*	300.00‡	350.00‡	1.55*h*	3.75*h*				39	0	28.50	20.50*b*	
Pittsburgh	109.00	1.46	2.20	.406*m*	.772*m*	2.85*m*	7.652*m*	147.00	230.00	1.05*h*	2.50*h*								
St. Louis	112.00	1.46	2.29	.51	.93	3.65	8.58	160.00*l*	360.00*l*	1.20*il*	2.70*il*								
San Francisco	122.00	1.55	2.29	.61*d*	1.20*d*	5.03*d*	12.57*d*	240.00*l*	400.00*l*	.73	3.02								
Seattle	124.00	1.55	2.42	.51*b*	.91*b*	....	....	150.00*c*	.....	.58*ee*	2.56*ee*								

Mill: Lorain, Ohio; Aliquippa, Pa.; Sparrows Pt., Md.; Benwood, W. Va.; Youngstown, O.; Indiana Harbor, Ind.; Sharon, Pa.; Wheatland, Pa.; Etna, Pa.; Fontana, Calif.

‡ Delivered. *a* Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b* Extra strength ASTM C 200-44T. *c* 4-in., $90. *d* SS361-A. *e* 30-in. *f* F.o.b. factory. *g* Culvert pipe. Reinforced, ASTM C76-41. *h* Reinforced, ASTM C75-41. *i* Reinforced, ASTM C76-37. *j* Centrispun. No. standard specifications in Can. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *p* Less than 5 tons, per price per ft. *t* Within switching limits. *u* ASTM C13-40. *v* C.L.f.o.b. origin, freight allowed. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60-1941 specifications used. *aa Extra strength ASTM C-200-50.* A standard strength. * 6" to 8", $1.67 per ft.; carlots, F.o.b. track Class 150. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, Newton. *dd* LCL delivered, f.o.b. truck. *ee* 1% off for cash. *ff* 21. *g* Culvert pipe. Reinforced, ASTM C75-41. *h* Reinforced, ASTM C76-37. *i







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Your Eimco can dig ditches, clean up slides, dig up shoulders, speed up new construction, in tunnels, loading trucks or in quarries loading rock.

The Eimco will load rock at the rate of 4 to 6 tons per minute average and sand or gravel at 6 to 8 yards per minute average.

The speed, efficiency and low cost of Eimcos make them preferred equipment in any highway department. Let us tell you of the many other advantages in using Eimcos.

A419

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The World's Largest Manufacturers of Underground Rock Loading Machines

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KELLOGG, IDAHO, 307 DIVISION ST. • LONDON W. 1, ENGLAND, 190 PICCADILLY

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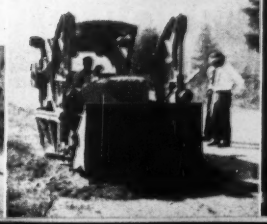
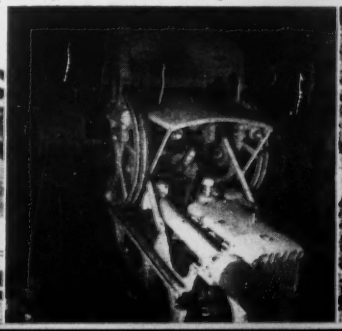
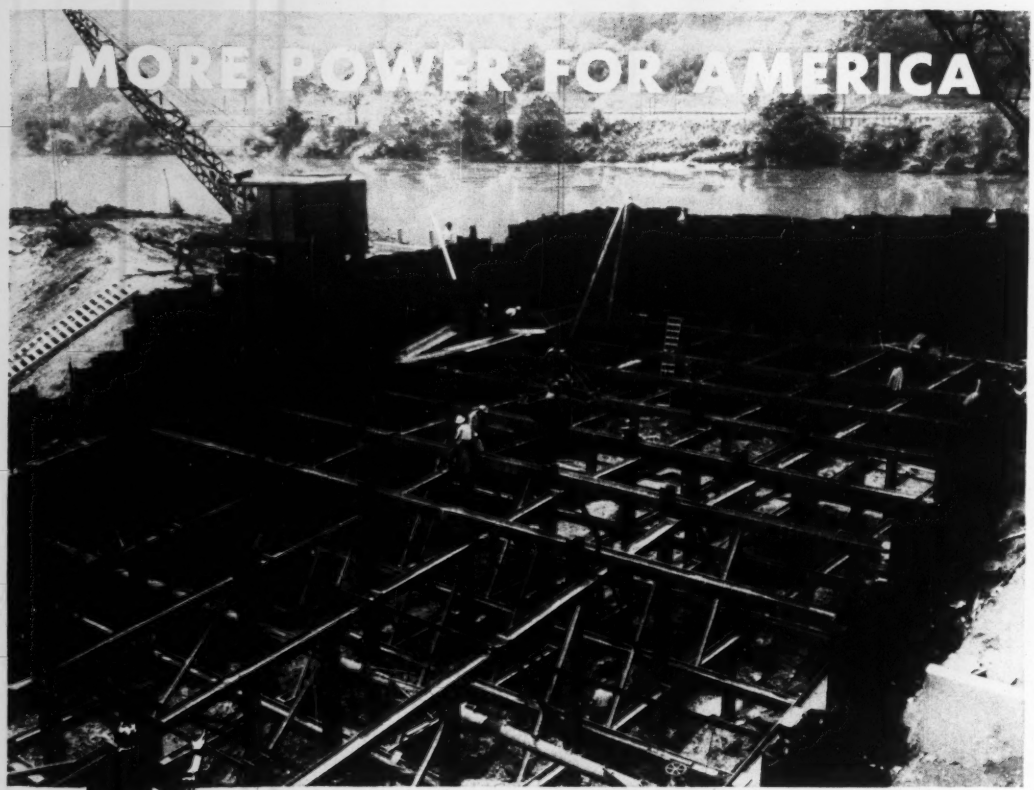
You Can't Beat an Eimco

Above: Digging ditch beside highway in Canada. Below, left to right: Clearing rock off highways, taking out shoulder for highway widening, loading in a tunnel, loading trucks in rock quarry.







You're looking into the Screenhouse Cofferdam for the 400,000 Kilowatt Kanawha River Power Plant, Glasgow, West Virginia — a $40 million project now under construction by American Gas and Electric Service Corp., N. Y. for Appalachian Electric Power Co.

ONCE AGAIN THE MORETRENCH WELL-POINT SYSTEM (left foreground) KEEPS AN AG & E JOB MOVING ALONG—

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Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (Prices in italics)

	SHORT LEAF YELLOW PINE AND DOUGLAS FIR									LONG LEAF Y. P.		PLYWOOD
										Merchantable grade up to 20 ft.		Rail freight increment (See note for base price)
	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	⅜"
Atlanta	† $75.00	$78.00	$69.00	$71.00	$75.00	$78.00	$77.00	.....	.....	.....	.....	$22.32
Baltimore	* 90.00	94.00	75.00	75.00	80.00	90.00	110.00	.....	.....	$155.00	$155.00	25.92*
	101.00g	*101.00g*	*101.00g*	*101.00g*	*101.00g*	*101.00g*	*104.00*	*$118.00*	*$118.00*	.....	.....	.....
Birmingham	† 83.50	83.50	70.50	80.50	83.50	85.50	95.50	.....	.....	115.50	155.50	21.78
	85.50	*85.50*	*80.50*	*79.50*	*78.50*	*78.50*	*85.50*	*85.50*	*85.50*	.....	.....	.....
Boston	102/106a	104/110a	102/106a	95/104a	96/106a	110/115a	.....	.....	.....	.....	.....	25.92*
	§ *95.00*	*95.00*	*100/106*	*100/106*	*100/106*	*100/106*	*108.00*	*107.00*	*107.00*	.....	.....	.....
Chicago	**100.00	105.00	92.00	100.00	101/102	105/106	105.00	.....	.....	134.00	134.00	22.45*
	160.00	*101/102*	*104/105*	*108.00*	*108/110*	*108/110*	*110.00*	*110.00*	*110.00*	.....	.....	.....
Cincinnati	* 99.00	105.00	88.00	98.00	105.00	110.00	122.50	.....	.....	145.00	145.00	25.00*
	109.50	*109.50*	*111.50*	*110.00*	*111.50*	*109.50*	*138.50*	*138.50*	*138.50*	.....	.....	.....
Cleveland	** 99.00	103.00	86.00	92.00	98.00	101.00	.....	.....	.....	.....	.....	25.37*
			102.00	*102.00*	*104.50*	*104.50*	*117.00*	*117.00*	*117.00*	.....	.....	.....
Dallas	†† 78.00	80.00	69.00	58.00	59.00	59.00	98.00	.....	.....	108.00	98.00	18.72
Denver	* *Not in stock*		*187.00*	*138.00*	*154.00*	*136.00*	*139.00*	*155.00*	*155.00*	.....	.....	13.92
Detroit	‡ 110.00	113.00	101.00	110.00	114.00	104.00	.....	.....	.....	.....	.....	25.00*
	101.50	*102.50*	*105.50*	*106.25*	*105.25*	*110.00*	*117.75*	*122.50*	*122.50*	.....	.....	.....
Kansas City	* 122.00	122.00	122.00	122.00	122.00	122.00	.....	.....	.....	.....	.....	16.56
	122.00	*122.00*	*122.00*	*122.00*	*122.00*	*122.00*	*147.50*	*157.50*	*157.50*	.....	.....	20.16
Los Angeles	‡ *96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*114.00*	*124.00*	*114.00*	.....	.....	16.61*ab
Minneapolis	# *130.00*	*130.00*	*135.00*	*135.00*	*135.00*	*135.00*	*150.00*	*150.00*	*150.00*	.....	.....	20.25*ab
Montreal	..... ab85.00	90.00	85.00	90.00	100.00	100.00	.....	.....	.....	.....	.....	19.89*
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*176.00*	*176.00*	*170.00*	.....	.....	24.25*
New Orleans	† 100.00	100.00	92.50	85.00	90.00	94.00	118.00	.....	.....	148.00	140.00	18.72
	† *90.00*	*100.00*	*108.25*	*99.25*	*97.50*	*97.50*	*120.00*	*122.50*	*120.00*	.....	.....	22.80
New York	§ 109/114	112/117	110/115	115/120	120/125	125/130	150/160	.....	.....	210/240	210/240	25.92*
			Range from $115.00 to $120.00				*150/145*	*144/155*	*144/155*	.....	.....	31.60*
New York	** 98.00	102.00	82.00	97.00	99.00	100.00	125.00	.....	.....	190.00	190.00	.....
	94.00	*94.00*	*101.00*	*101.00*	*101.00*	*102.00*	*108.00*	*125.00*	*125.00*	.....	.....	.....
Philadelphia	‡		**Range from $114.00 to $127.00**				114/127	.....	.....	200/210	200/210	25.92*
			Range from $125.00 to $150.00				*130/140*	*150.00*	*150.00*			31.60*
Pittsburgh	†		**Range from $90.00 to $95.00**			110/120	110/120	.....	.....	110/120	115/125	25.92*
			Range from $110.00 to $120.00			*110/120*	*110/120*	*140/155*	*145/155*	.....	.....	31.60*
St. Louis	†c122.00e	124.00e	100.00d	115.00e	119.00e	125.00e	205.00e	205.00	205.00	.....	.....	18.72
			117.00f	*125.00e*	*125.00e*	*125.00e*	*67.00*	*70.00*	*70.00*	.....	.....	22.80
San Francisco	A† *65.00*	*68.00*	*69.00*	*69.00*	*67.00*	*67.00*	.....	.....	.....	.....	.....	12.22*a
Seattle	† *80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	.....	.....	14.91*a

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* **Tax exempt.** *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *h* 8 ft. lengths. *k* No. 3 common. *l* 8–10 ft. lengths. *n* ½ #1, ½ #2 & ½ #3.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ½", $159.00; on ¼", $181.00. Exterior plyform ⅜" $179.00, ¼" $203.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950*a* — Single or Double Thickness		EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
	A quality	B quality	
Atlanta	79%	80%	$0.2315
Baltimore	76%*d*	76%*d*	.2315
Birmingham	83%	83%	.1790
Boston	79–10%	79–10%	.2315
Chicago	78%	78%	.2315
Cincinnati	78%	78%	.2315
Cleveland	78–10–10%	78–10–10%	.2715
Dallas	75%	75%	.2390
Denver	81–5%	81–5%	.2365
Detroit	78–10–10%	78–10–10%	.2315
Kansas City	80–10%	80–10%	.2365
Los Angeles	75%	80%	.2340
Minneapolis	78–10%	78–10%	.2365
Montreal	40–5%*bc*	40–10–5%*b*	21.60*kk*
New Orleans	78%	77%	.2365
New York	82–10%	82–10%	.3975*g*
Philadelphia	78%	80%	.2315
Pittsburgh	82%	82%	.2040
St. Louis	80–10%	80–10%	.2365
San Francisco	70%	70%	.2315
Seattle	75%	78%	.2340

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *k* F.o.b. cities per 100 lb. forcite, 40% Forcite 60%, $23.35. *kk* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.179	$0.2115	$0.2315
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.184 – 1915	.2165–.224	.2365–.244
Rocky Mtn. States	.184 – 1965	.2165–.224	.2365–.249
Pacific N. W. States	.1815–.194	.214 – .2265	.234 – .2465
Pacific S. W. States	.179 – .1865	.2115–.214	.2315–.2365

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail: Pine*	By Rail: Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	.....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.54	.....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.58	.....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	.....	.....
13-in.— 3-ft. from butt	8-in.	91 to 100-ft.	.....	.....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.80/.68	.....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.— 2-ft. from butt	6-in.	80 to 85-ft.	.83/.93	.94
14-in.— 2-ft. from butt	8-in.	85 to 89-ft.	.....	1.00
14-in.— 2-ft. from butt	8-in.	90 to 100-ft.	.....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	.....	.....	.....	.....
	Pine	.....	.....	.....	.....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88*a*	2.85	4.58*a*
Chicago	Red Oak	.....	4.00*a*	.....	5.00*a*
Los Angeles	Douglas Fir	.....	.....	.....	.....
	Redwood	.....	.....	.....	.....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	3.04	.....	3.85	.....
	Red Oak	2.94	3.60*a*	3.67	4.68*a*
	Sap Pine or Cypress	3.41*a*	.....	4.44	.....
San Francisco	Douglas Fir	2.20*a*	3.25*af*	2.92*bf*	4.30*caf*
Montreal	Birch or Maple	..... *h*	..... *h*	..... *h*	..... *h*

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.10
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE — PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity, Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.50	$247.50	$327.00	$342.00	$381.50	$27.38	$27.38	$19.00	$17.50	$17.50
Baltimore	183.00	195.00	366.00	415.00	541.00	618.00	36.00*k*	41.00*k*	30.00	21.00	....
Birmingham	118.00*p*	128.00*p*	236.00*p*	283.00*p*	.....	.....	23.50*ff*	28.00*gg*	26.37	17.10	*
Boston	196.00†	209.00†	392.00†	383.25†	.....	.....	34.50*p*	37.50*p*	30.00†	28.00†	*
Chicago	135.00	145.00	280.00	.... ..	.....	. .	23.00	25.00	30.80	26.00	....
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	34.50*j*	46.00*j*	26.37*j*	24.62*j*	.....
Cleveland	172.00**	183.00**	.....	.....	.....	.....	32.00	32.00	25.50	23.50	31.00*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	35.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	40.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	127.75	136.25	255.55	.....	317.25	362.60	34.90*cc*	33.30*cc*	32.00	30.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	26.00	26.00	30.50	24.50	27.00
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	24.50§	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*wp*	.....	.....	32.00*vp*	36.00	38.00*bbe*	28.00*bbe*	40.00*bbde*
Montreal	150.00*aq*	162.50*au*	300.00*au*	.....	.....	.....	31.00	41.50	34.80	32.50	24.60*u*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	138.70*h*	147.90*h*	203.40*ch*	221.90*hn*	.....	.....	35.00	.....	36.00	32.00	....
Philadelphia	126.30	134.80	252.60	302.74	361.35	.....	32.00	42.00 *	25.00	23.00	2.97
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	36.00	46.00*y*	25.00	23.00	2.97*m*
St. Louis	139.00*cc*	160.00*cc*	322.00*cc*	395.00*cc*	.....	.....	40.00*sl*	36.00*s*	.85*saa*	.65*saa*	1.10*aaspes*
San Francisco	156.85*a**	177.10*a**	235.30*dda**	.....	.....	.....	37.00	.....	26.60	26.60	2.65*m*
Seattle	175.00*cc*	190.00*cc*	.....	190.00*ccw*	.....	.....	39.00*s*	49.00*s*	37.50*sAA*	1.45*f*	3.90*mAA*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl. 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. ‡ Per 60 lb. sack, no incr., ton price no longer quoted. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$17.00	$28.275	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	16.75	27.90	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	17.00	28.275	3.90	3.40	....	2.80	2.75	2.75	....	40.50*ee*
Boston	16.75	27.90	....	....	....	2.67*qq*	2.79*qq*	2.79*qq*	.42*g*	42.00*g*
Chicago	16.75	27.90	....	. .	. .	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbr*	43.00‡
Cincinnati	16.75	27.90	....	....	....	2.50	2.50	2.50	.42*y*	42.36
Cleveland	16.75	27.90	2.48*pqq*	2.88*qq*	2.38*qq*	2.50*q*	2.50*o*	2.50*o*	.39*y*	43.20*hh*
Dallas	17.00	28.65	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.36	46.00
Denver	17.25	28.40	3.07	5.15	2.87	3.31*o*	2.40*o*	2.40*o*	.43*ff*	44.00
Detroit	16.75	27.90	2.35	3.40	2.80	2.75	2.50*f*	2.50	.51	40.00
Kansas City	16.75	28.02	....	2.71*ys*	2.65 *	2.50	2.50*o*	2.50*o*	.313*	48.00
Los Angeles	16.75	28.15	3.30*	4.50*	4.20*	2.97*	2.01*e*	1	.44*	1
Minneapolis	16.75	29.88 /28.02	....	....	....	2.40*idd*	2.50*idd*	2.50*idd*	.36*idd*	37.00*
Montreal		20.70	2.95*Bff*	4.05*Bff*	3.35*Bff*	4.82‡	3.65‡*f*	3.65‡*f*	1.24‡*t*	3.75‡*t*
New York	16.75	27.90	....	....	....	2.50	2.50*o*	2.50*o*	.36*z*	37.00*
Philadelphia	16.75	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	16.75	27.90	2.65	2.65	3.15	2.50	2.87*o*	2.87*o*	.30	42.00
St. Louis	16.75	27.90	....	....	....	2.50	2.50*h*	2.50*h*	.33*y*	38.00
San Francisco	16.75	28.15	2.40	....	3.40	2.95	2.00*aa*	....	.40	....
Seattle	16.75	28.40	2.96*m*	2.80*m*	....	3.58*mqcc*	3.05‡*mcc*	....	.59*mcc*	52.00‡*mc*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 5-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bc* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *D*. Std Black. *E* Ready-mixed, *F*. Over 80% ferric oxide. * Aver. wt. approx. 500 lbs

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.90	$2.35	$2.60	$2.25	$2.75	$2.60	$2.90	$1.13	$1.13
Baltimore	3.20*d*	2.58	3.125*e*	2.85/3.00	2.75	2.875	2.875*t*	1.565*t*	1.565*t*
Birmingham	3.00	2.50	2.50	2.16	2.52	2.75	2.65	1.225	1.325
Boston	3.06*	2.625	2.82	3.00	3.05	3.00*d*	2.90*d*	1.99*	1.99*
Chicago	3.25*k*	3.00*m*	3.05*m*	2.80	3.43*s*	3.212*f*	3.09*	2.20*m*	2.20*m*
Cincinnati	3.12	2.625	2.815	2/2.50/3.05	2.90	2.90	2.90	1.92	1.92
Cleveland	3.12	3.075*d*	3.075	3.075	3.075	3.075	3.07*C*	2.325	2.325
Dallas	3.4375	2.4875	2.625	2.50	3.437	2.75	2.7625	1.325	1.35
Denver	3.45	2.625	2.50	2.63	3.30	2.90	2.82	1.725	1.725
Detroit	3.15*	2.93*	3.15*m*	2.90	3.31*m*	3.05	3.00*	2.15*	2.15*
Kansas City	3.50	2.55	2.68	2.515/2.76	3.175	2.70	2.90*z*	1.88	1.88
Los Angeles	3.175	2.57	2.70*w*	2.45	3.437	2.75	2.90	1.94	1.94
Minneapolis	3.05	2.55	2.72	2.50	2.90	2.71*n*	2.70	1.82	1.82
New Orleans	2.85	2.22	2.65	2.50	2.525	2.65	2.65	1.225	1.225
New York	3.85*w*	3.24*bB*	3.50*B*	3.50*B*	3.95*d*	3.795*aa*	3.445*bp*	2.05	2.05
Philadelphia	3.61*i*	2.90	3.32*i*	3.30	3.475*k*	3.45*	3.29*	1.75	2.05
Pittsburgh	3.40	3.00	2.875	3.00	3.15	3.00	3.00	1.90	1.90
St. Louis	3.55*c*	2.90*h*	2.90	2.95	3.00	3.09*c*	2.90	1.97	1.97
San Francisco	3.25*w*	2.705	2.85	2.56	3.125*	3.00	2.75	1.85	1.85
Seattle	3.30	2.58	2.78	2.71	3.15	2.80	2.75	2.18	2.14
Montreal*‡	1.90	1.70	1.80	1.60	1.90	1.80	1.85	1.20	1.20

* Cost of living bonus now included in basic wage. ‡ Includes 5¢/hr tool replacement. † Plus 2% vacation pay.

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vac. stamp fund for bricklayers; 4% for electricians plus 7¼¢ WF. *d* Incl. 10¢ H&WF. *e* Incl. 6¢ H&WF. *f* Incl. 6% WF. *g* Incl. 11½¢ WF. *h* $2.45 homes & housing plus 5¢ VF. *i* Incl. 3½% WF and 15¢ PF. *j* Incl. 9¢/hr WF. *k* Incl. 7½¢/hr WF. *l* Incl. 4% VF. *m* Incl. 6¢/hr WF. *n* Incl. 3% WF. *p* Incl. 3% WF, 3% PF. *r* Incl. 2% WF and 20¢ PF. *s* Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. *t* Incl. 7½¢ H&WF. *u* Incl. 1½% WF. *v* Incl. 10¢ WF. *w* Negotiating. *z* Await. WSB appr. *y* Incl. 8% WF. *z* Incl. 7½¢ IF, 5¢ H&WF. *A* Incl. 10¢ WF, 10¢ PF & 10¢ VF. *B* Incl. 3% WF, 6 PH. *C* Incl. 7¢ IF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Oct.'52	Nov.'52
Common Wages—Building (8 hr. day)	av. per hr.	.83*	.83*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.93*	.93*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25*	2.25*
Bricklayers (8 hr. day)	av. per hr.	2.25*	2.25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.50*	1.50*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1,193.13	1193.13
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,355.67	1355.67
½" x 11 meters	per ton	1,344.46	1344.46
⅝" x 11 meters	per ton	1,333.25	1333.25
¾" x 11 meters	per ton	1,322.04	1322.04
⅞" x 11 meters	per ton	1,322.04	1322.04
1" x 11 meters	per ton	1,322.04	1322.04
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	50.00	50.00
Rose Gravel	per tr. load	47.00	47.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	750.00	750.00
1st Class Pine	per M ft.	1400.00	1400.00
2nd Class Pine	per M ft.	1100.00	1100.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers): $2.942 **ENR Common Average:** $1.817

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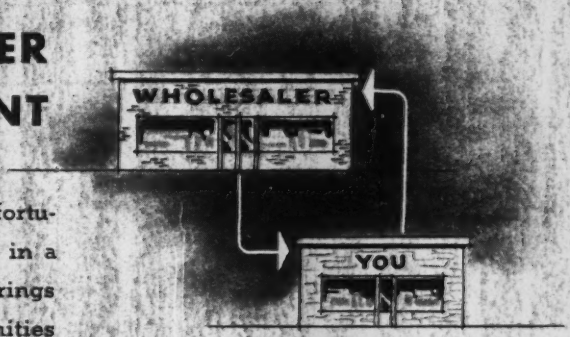

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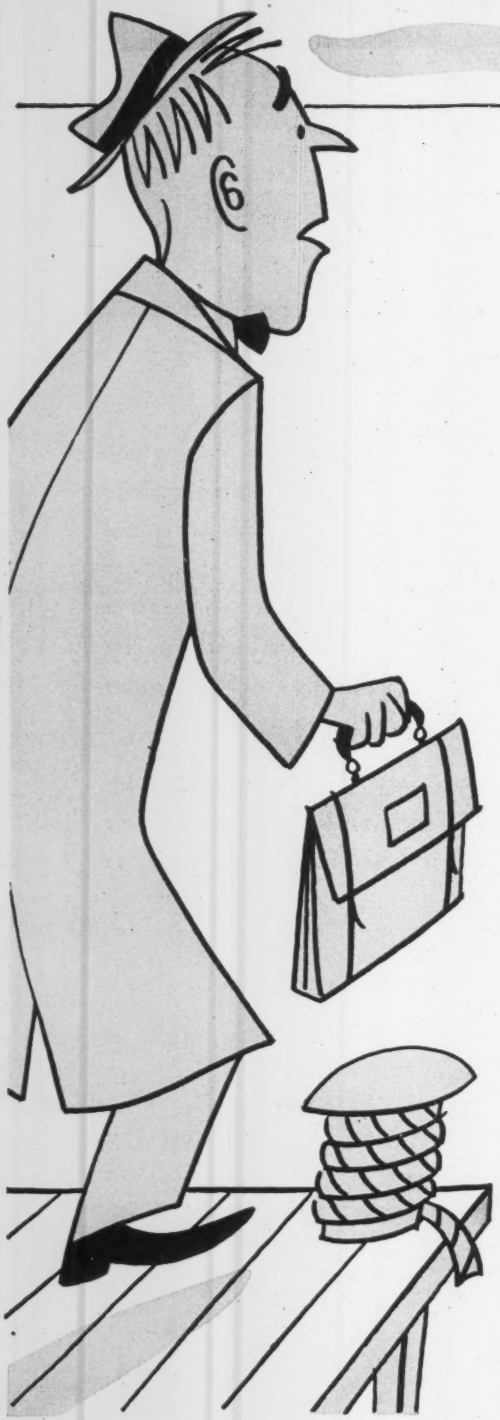

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PROTECT WHAT YOU HAVE©

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 8 Connecticut December 19 Vermont

BIDS ASKED—BUILDINGS

Mass., Belchertown—SCHOOL—B.A. 12/16—Town, Supt. Schools, brick elementary school, off S. Main St. $493,000. Plans deposit $50. Bernhard Dirks, Mohawk Trail, Greenfield, archt. CD 6/30/52.

▲ **R. I., Newport**—HOUSING—B.A. 12/22—Newport City Housing Auth., Newport, housing, bounded by Chapel St., Edgar Ct., Memorial Blvd. $1,000,000. Plans deposit $25. CD 5/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John E. Pringle Co., Inc.,** 475 Fifth Ave., New York 17, N. Y. CA. $4,000,000. general contract, 1 and 2 story, brick block SHOPPING CENTER, incl. between 30 to 35 stores, incl. department type store, rest, medical dental center, 1,500 car parking area, GREENWICH, CONN. Home Owners Mutual Enterprises, Inc., 230 Park Ave., New York, N. Y. O'Hara, Hedlander & Edson, 45 E. Putnam Ave., Greenwich, Conn., archts. Housing project abandoned because of zoning restriction. CD 4/23, under CA.

▲ **Anderson Fairoaks Constr. Co.,** 141 S. Marshall St., Hartford, Conn., LB. $1,125,000, MR-46 HOUSING, WALLINGFORD, CONN. Boro of Wallingford Housing Auth., 900 Center St., Wallingford, Conn. Bids No. 19.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 16 Maryland
STREETS AND ROADS
December 9 Maryland December 18 New York
December 19 Pennsylvania

SOON LETS CONTRACT—BUILDINGS

▲ **Del., Wilmington**—HOSPITAL—The Memorial Hospital, 1501 Van Buren St., soon lets contract superstructure Part 2, hospital addn. $3,500,000. York & Sawyer, 101 Park Ave., New York, N. Y., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW YORK—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany

White Oak Excavators, Inc., Plainville, Conn. CA. $926,957, est. $989,000. Menands-Troy Bridge, 1.67 mi. Loudonville-Menands, S.H. 1879, FARC 52-90, FASH 52-13, Albany Co. Bids Oct. 30. CD 11/3, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Joseph H. Bauer & Assoc.,** 490 Potter Blvd., Brightwaters, N. Y. CA $1,000,000. 100 HOUSES, 30-acre tract on Brook Ave., north of Sunrise Hy., BAY SHORE, N. Y. Rob-Den Homes, c/o contractor.

▲ **Kissena Park Apartments,** c/o Julius Fishkind, archt., 161-19 Jamaica Ave., Jamaica, N. Y. Owner Builds. $3,000,000. four 6 story APARTMENTS, Kissena Blvd., 45 and Cherry Aves., FLUSHING, N. Y.

▲ **Maran Constr. Co.,** 1910 Arthur Ave., New York 57, N. Y. LB $1,732,000, general constr.:

Heating Maintenance Corp. of N. Y., 220 E. 138 St., New York 51, N. Y., LB $472,770, heating for Flushing HIGH SCHOOL addn., FLUSHING, N. Y. Co-ordinator of School Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 18. CD 10/22.

Berne Constr. Co., 110 Mamaroneck Ave., White Plains, N. Y., CA. $750,000. 60 HOUSES, 15-acre tract on Secor Rd., between Hartsdale and Saw Mill River Rds., HARTSDALE, N. Y. Hartsdale Farms Homes, c/o contractor.

▲ **Westland Gardens Homes,** c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. $2,500,000. 250 HOUSES on tract at New York Ave. and W. 22 St., HUNTINGTON, N. Y.

▲ **Peter Marshall Homes,** c/o Matern & York, archts., 90-04, 161 St., Jamaica, N. Y. Owner Builds. $1,000,000. 75 HOUSES, 18-acre tract Hicksville Rd., south of Southern State Parkway, MASSAPEQUA, N. Y.

▲ **Stratton Heights, Inc.,** c/o Lee Perry, archt., 419 North Ave., New Rochelle, N. Y. Owner Builds. $5,000,000. 185 HOUSES on tract on Baraud Rd. near Puritan Dr., NEW ROCHELLE, N. Y.

▲ **Thomas Crimmins Constr. Co.,** 624 Lexington Ave., New York, N. Y., CA foundations;

Bethlehem Steel Co., E. 3 St., Bethlehem, Pa., CA steel, for 27 story OFFICE, 261 Madison Ave. east side from 38 to 39 Sts., NEW YORK, N. Y. 260 Madison Ave. Corp., c/o Sylvan Bien, archt., 565 Fifth Ave., New York 17, N. Y. Total est. $12,000,000.

Gregory Lawns Home, c/o Rudolph Novak, archt., 713 Main Ave., Clifton, N. J., Owner Builds, $600,000 41 HOUSES on tract in Greglawn Dr. off Broad St., CLIFTON, N. J.

▲ **Whitpain Properties, Inc.,** Morris Rd., Ambler, Pa. Separate Contracts. $1,435,000, 82 RESIDENTIAL homes, Morris Rd., Sect. 1; $1,100,000, RESIDENTIAL DEVELOPMENT, Morris Rd., Sect. 2, AMBLER, PA. Paul M. Hesser, 140 W Phil-Elena St., Phila. Pa., archt.

L & D Building Co., Box 487, Latrobe, Pa., LB $939,000. 1, 2, 3 story, steel HIGH SCHOOL, ARMAGH, PA. United Joint School Dist., Armagh, Pa. Bids Nov. 17. CD 10/21.

▲ **L. F. Driscoll Co.,** 18 W. Chelten Ave., Phila. Pa., CA. $2,039,827, HOSPITAL, LAUNDRY, GARAGE, paving, etc. BRISTOL, PA. Lower Bucks County Hospital, Bristol, Pa. Bids Sept. 12. CD 10/7, under LB.

▲ **Albert A. Toll,** Washington Lane and Ashburn Rd., Elkins Park, Pa., Separate Contracts. $1,000,000. RESIDENTIAL DEVELOPMENT, Washington Lane, etc. ELKINS PARK, PA. Leopold Hauf, Jr., 101 Walsh Rd., Lansdowne, Pa., archt.

▲ **T. J. Regan Builders, Inc.,** 301 York Rd., Jenkintown, Pa. Separate Contracts. $1,000,000. RESIDENTIAL DEVELOPMENT, Bethlehem Pike, FLOURTOWN, PA. J. Lee Thorne, 122 S. 17 St., Phila., Pa., archt.

▲ **Leimbach Constr. Co.,** 3906 Hickory Ave., Baltimore, Md. LB $1,017,220. Elmer A. Henderson Elementary SCHOOL (colored) Wolfe, Biddle, Washington and Chase Sts., BALTIMORE, MD. City, Bureau Bldg. Constr., 410 E. Municipal Bldg., Baltimore, Md. Bids Nov. 19. CD 11/5.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 12 Georgia
STREETS AND ROADS
December 12 Georgia

BIDS ASKED—BUILDINGS

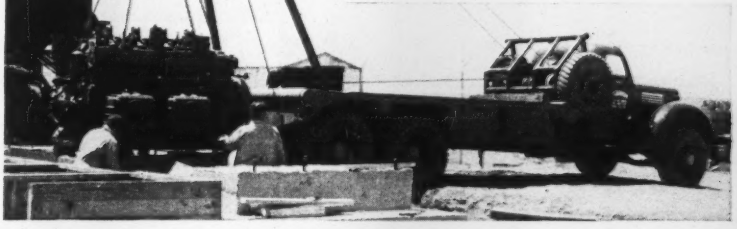
▲ **Fla., Miami**—HOUSING—B.A. 12/16—Miami Housing Auth., 327 N.W. 62 St., 512 housing units for Negroes, $4,500,000. CD 6/19.

Miss., Picayune—HOUSING—B.A. 12/16—Picayune Housing Auth., Picayune, 65 housing units, Miss. 66-1 and Miss. 66-2, $600,000. CD 5/6/52.

TULSA TRUCK POWER WINCHES FOR EQUIPMENT INSTALLATION

Tulsa Winches are designed for heavy and difficult jobs. They are built of the finest available materials insuring long, trouble free service. All Tulsa Winches are equipped with automatic worm brake designed to hold the load while suspended. Load can be lowered only by power. Larger models, such as the Model 64 shown below, are also equipped with drum brake for maximum safety. Tulsa Winches are completely controlled by levers located in the truck cab.

Tulsa Winches are available in capacities from 6500 to 80,000 lbs.



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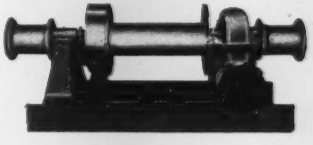

▲ Tenn., Jackson—HOUSING—B.A. 12/16—Jackson Housing Auth., Jackson, 215 Negro Housing units. $2,000,000. CD 2/5.

▲ Va., Fairfax—SCHOOLS—B.A. 12/18—Bd. Educ., Fairfax Co., Fairfax, Merrifield High School, Falls Church, $500,000, Earl Bailey, 6915 29 St. N., Arlington, archt.; Falls Church High School, $600,000, Dixon & Norman, 1103 E. Main St., Richmond, archts. CD 4/10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † W. A. Smith Constr. Co., 1209 10th St., Houston, Tex. CA. $2,079,373. railroad from Leeland, N. C. to new army ammunition Depot at Sunny Point, NORTH CAROLINA. U. S. Eng., 308 Customhouse, Wilmington, N. C. Bids Nov. 18. CD 10/31.

▲ GEORGIA—State Hy. Dpt., Atlanta:

Lothridge Bros., Gainesville, Ga., CA, $97,201 PR-1203 (1), Rabun Co.; CA, $116,669, S-1241 (1), Newton Co.;

Crummey & Crummey, Rochelle, Ga., CA, $114,075, S 0679 (2), Pulaski Co.; CA, $128,987, S-0532 (2), Randolph and Terrell Counties;

Ocmulgee Constr. Co., McRae, Ga., CA, $117,556 S-0686 (5), Wilkinson Co.; CA, $91,015, S-0582 (1), Laurens Co.;

C. L. Rhodes, Decatur, Ga., CA, $77,188, FI-001-4 (1) Contract 2, Clayton Co.;

J. G. Attaway Constr. Co., Statesboro, Ga., CA, $63,329 S 0731 (1), Bulloch Co.;

R. A. Bowen, Inc., Macon, Ga., CA, $80,307, S-1640 (1), Jones Co.;

E. F. Groover, Moultrie, Ga., CA, $249,142, S-0546 (13) and S 0546 (4), Tift and Worth Counties;

E. A. Hudson Sons, Bolton, Ga., CA, $1,010,804 FI 001-4 (1), Contract 1, Clayton Co., Bids Nov. 21. Grand total $2,146,273. CD 11/12.

Modern Welding Co., Owensboro, Ky., CA, $652,707 natural gas system, FORT VALLEY, GA. City, Fort Valley, Ga. Bids Nov. 18. CD 10/16.

▲† Gahagan Constr. Corp., 90 Broad St., New York, N. Y., LB, $2,268,801, constr. Levee 7, major project in Central-Southern Florida flood control project 17 mi. from West Palm Beach Canal southwest and south to Hillsboro Canal, CIVENG 08-123-53-15-B, FLORIDA U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Bids Nov. 18. CD 10/20.

▲ LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge:

Foster & Creighton Co., American National Bank Bldg., Nashville 3, Tenn. LB $742,913. viaduct and c. conc. 0.436 mi. Spring Street Viaduct (Shreveport) State Rte. 20. S. P. 53-09-03, F. A. Proj. U 412 (1), Caddo Parish;

Kansas City Bridge Co., 928 Broadway St., Kansas City 6, Mo. LB $150,000. bridge removal 0.169 mi. portions of Calcasieu River Bridge at Lake Charles, State Rt. 1092, S. P. 810-24-27, Calcasieu Parish;

W. R. Fairchild Constr. Co., Box 127, Hattiesburg, Miss. LB $196,887. four 30 ft., four 40 ft. reinf. con. deck girder bridge, sixteen 20 ft. concrete slab span bridge, twelve 20 ft. concrete slab span bridge 0.159 mi. Dixie Inn-Minden Hy., State Rte. 4, S. P. 1-04-15, F. A. Proj. F 116 (9), Webster Parish. Bids Nov. 19. CD 10/30 and 10/31.

▲ LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge:

T. L. James & Co., Inc., Box 531, Ruston, La. LB $561,421. patching, widn. existing c. conc. 13.91 mi. Welsh-Mermentau Hy., State Rte. 2, S. P. 3-07-07 and 3-08-08, Jefferson Davis Parish;

W. R. Aldrich & Co., Box 1751, Baton Rouge, La. LB $477,426. c. conc. 3.356 mi. Orange-Toomey Hy., State Rte. 2, S. P. 3-02-20, F. A. Proj. FI 411 (4), Calcasieu Parish;

Henry & Hall, Dubach, La. LB $290,946. bit. surf. tr. 7.286 mi. Epps-West and Darnell-West Hys. State Rtes. 455 and 592, S. P. 161-06-07 and 185-03-11, F. A. Secondary Proj. S 67 (3), West Carroll Parish;

Barber Bros. Co., Box 629, Baton Rouge, La. LB $360,450. bit. surf. tr. 15.009 mi. Hammond-Covington Hy., State Rte. 7, S. P. 13-09-20, Tangipahoa and St. Tammany Parishes;

W. H. Patterson & Co., Box 2229, Baton Rouge, La. LB $65,850. bit. surf. tr. 3.1 mi. Hadden's Ferry-Anacoco Hy., State Rte. 138, S. P. 133-02-04, Vernon Parish;

T. W. Kleinpeter, Box 5186 Audubon Station, Baton Rouge, La. LB $127,924. bit. surf. tr. 6.774 mi. Toomey-Starks Hy., State Rte. 121, S. P. 187-01-04, Calcasieu Parish. Bids Nov. 19. CD 10/31 and 10/30.

▲ † James F. O'Neil, 1501 S. Rendon St., New Orleans, La. CA $2,175,000. dehumidification and electrical systems at Michoud Ordnance Plant, Inv. 53-34, NEW ORLEANS, LA. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Oct. 31, awarded Nov. 20. CD 11/6, under LB.

Chattanooga Gas Co., 811 Broad St., Chattanooga, Tenn. Owner Builds. $750,000. 1953 natural gas sys. imprvs., CHATTANOOGA, TENN.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Howar Bros., 1829 K St., N. W., Wash., D. C. Owner Builds. $1,650,000. 186 multi-family unit HOUSING, S. Ridge Rd., ARLINGTON, VA. Edwin Weihe, 927 15th St. N. W. Wash., D. C., archt.

P. L. Anderson & Sons, Danville, Va., CA $498,890, 1 story 55,000 sq. ft. Coca-Cola bottling PLANT, DANVILLE, VA. Danville Coca-Cola Bottling Co., Danville, Va. Bids Nov 18. CD 10/30.

E. A. Scott & Sons, Americus, Ga., CA, $675,000 100 HOUSING Units, SWAINSBORO, GA. Swainsboro Housing Auth., Swainsboro, Ga. Bids Nov. 20. CD 10/28.

Howard Greenfield, Box 697, Hollywood, Fla., Owner Builds, $700,000, 75 RESIDENCES, HOLLYWOOD, FLA.

Greenville Municipal Separate School Dist., Greenville, Miss. rejected bids Nov. 18, high school, GREENVILLE, MISS. LB $938,800. CD 11/25, under LB.

L. B. Priester & Son., Box 869, Meridian, Miss. LB $938,800. High SCHOOL, GREENVILLE, MISS. Greenville Municipal Separate School Dist., Greenville, Miss. Bids Nov. 18. CD 10/22.

† C & B Constr. Co., 124 Albert Pike, Hot Springs, Ark. LB $898,579. inert storage WAREHOUSES, Louisiana Ordnance Plant, SHREVEPORT, LA. U. S. Eng., 300 Broadway, Little Rock, Ark. Bids Nov. 19. CD 11/10.

▲ Sullivan & Cozzart, 822 W. Kentucky St., Louisville 10, Ky. CA $1,145,620, general contract. HOSPITAL, Brook and Chestnut Sts., LOUISVILLE, KY. Jewish Hospital Assn., Floyd and Kentucky Sts., Louisville, Ky. Bids Sept. 23, awarded Nov. 20. CD 9/26, under LB.

Wehr Constr. Co., 2127 S. Floyd St., Louisville 8, Ky. LB $692,700. Fern Creek County High School addn., Fern Creek, LOUISVILLE, KY. Jefferson Co. Bd. Educ., 618 W. Jefferson St., Louisville, Ky. Bids Nov. 20. CD 11/6.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
December 9 Indiana
STREETS AND ROADS
December 9 Indiana, Wisconsin December 16 Ohio

▲ Ill., Chicago—B.A. 12/11—City, City Hall, two-level Wacker Dr. from Adams to Jackson Sts. $1,000,000. CD 11/7.

▲ O., Cincinnati—B.A. 12/16—City, City Hall, constr. Mill Creek Outfall and diversion sewer from Ohio River to Gest St. and west Branch-Ohio River Interceptor. $1,500,000. Plans deposit $10. T. J. Montgomery, city engr. CD 5/19.

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9. Industrial property conservation
10. Railway and highway embankment retaining walls

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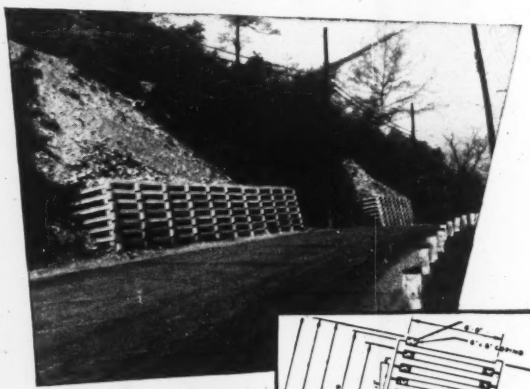

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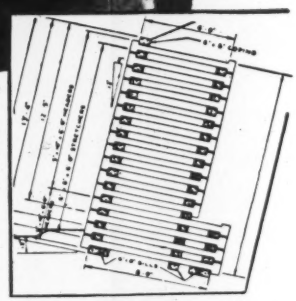

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BIDS ASKED—BUILDINGS

▲ Mich., Detroit—AUDITORIUM—B.A. 12/16—City, J. E. Frawley, pres. Memorial Hall Comn., foundations, piles and pile caps contract brick, steel, stone Henry-Edsel Ford Auditorium, Woodward, Jefferson and Randolph Sts., $3,000,000, Crane, Kiehler & Kellogg, 112 Madison Ave., and O'Dell, Hewlett & Luckenbach, 2300 Dime Bldg., archts. CD 10/11/50.

▲ Mich., Detroit—HOUSING—B.A. 12/17—Detroit Housing Comn., Harry J. Durbin, secy., 409 Griswold St., Edward J. Jeffries Homes, incl. eight 14 story, brick apartments, Haynes, Gibson, Seldon and Lodge Expressway, Area No. 2, Mich. 1-7, $9,000,000. Plans deposit $25, refundable, Smith-Hinchman & Grylls, Inc., 243 W. Congress St., Detroit, archt. CD 11/13.

▲† Ill., Lemont — HEATING PLANT — B.A. 12/23 — Atomic Energy Comn., Lemont, heating plant, Argonne National Laboratory. $1,000,000. Jackson & Moreland, 19 E. 47 St., New York, N. Y., engrs. CD 11/17/48.

▲ Wis., Mendota—RECEIVING and INTENSIVE TREATMENT—B.A. 12/30—State Dpt. P. Welfare, 128 S. State Capitol Madison, 2 story, 190x360 ft., rein.-con., brick steel receiving and intensive treatment bldg. $2,500,000. Roger C. Kirchhoff, Madison, state archt. Brust & Brust, 135 W. Wells St., Milwaukee, Zone 3, archts. CD 6/21/51.

▲ Mich., Detroit—HOUSING—B.A. 1/7—Detroit Housing Comn., H. J. Durbin, secy., 409 Griswold St., Edward J. Jeffries Homes, incl. five 14 story brick, steel apartments, Canfield, Willis, Gibson and Lodge Expressway, Area Nov. 4, Mich. 1-7A, $5,000,000. Plans deposit $25, refundable, Smith-Hinchman & Grylls, Inc., 243 W. Congress St., Detroit, archt. CD 1/10/45.

SOON LETS CONTRACT—BUILDINGS

▲ Ill., Chicago—TESTING FACILITY—Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich., soon lets contract superstructure for jet engine testing facility. $2,500,000. Albert Kahn Associated Architects & Engineers, Inc., New Centre Bldg., Detroit, Mich., archt. CD 10/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Thomas D. Nolan Co., 4017 S. Brook St., Louisville, Ky., CA, $1,394,000, Section 1 Fall Creek Interceptor Sewer, N.W. Ave. to Sutherland Ave.;

Columbia Constr. Co., 2108 Columbia Ave., Indianapolis, 18, Ind., CA, $1,474,744, Section 2 Sutherland Ave. to 42 St., INDIANAPOLIS, IND. Bd. Sanitary Comrs., City Hall, Indianapolis, Ind. Bids Nov. 3. CD 11/25, under LB.

▲ ILLINOIS—State Div. Hys., Springfield,

The Standard Paving Co., 30 N. La Salle St., Chicago, 2, Ill., CA, $682,082, c. conc. 3.75 mi. U.S. 40, Clark Co. (Correction—cost);

S. J. Groves & Sons Co., 1104 W. Reynolds St., Springfield, Ill., CA, $1,618,680, c. conc. base course wid'n., bit. resurf. 0.52 mi. Ill. 34 and c. conc. 8.89 mi. Ill. 146, Hardin Co.;

Joyce Bros. Constr. Co., 715 Myers Bldg., Springfield, Ill., CA, $854,032, c. conc. base course wid'n., c. conc. base course 2 bridges 8.29 mi. U.S. 36, Scott Co.;

Triangle Constr. Co., 480 N. Evergreen Ave., Kankakee, Ill., CA, $993,636, c. conc. base course wid'n., c. conc. base course, c. conc. 21.07 mi. Ill. 37 Williamson and Johnson Counties. Grand total $4,148,430. Bids Nov. 13, awarded Nov. 24. CD 11/19, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Shelby Constr. Co., Inc., 1108 Canal St., New Orleans, La. Owner Builds. $5,000,000. 334 HOMES, COLUMBUS, O. Todd Tibbals, 965 E. Broad St., Columbus, O., archt.

A. Siegler & Sons, 4923 Lee Rd., Cleveland, O. Owner Builds. $750,000. 50-house HOUSING, Monica Dr., GARFIELD HEIGHTS, O.

▲ Procon, Inc., 80 E. Jackson St., Chicago 4, Ill. CA. $8,500,000. catalytic REFINING unit, LIMA, O. Standard Oil Co. of Ohio, Standard Oil Bldg., Cleveland, O. Universal Oil Products Co., 310 S. Michigan St., Chicago 4, Ill., engr. Awarded Nov. 19. CD 12/6/51.

▲ A. Siegler & Sons, 4923 Lee Rd., Cleveland, O. CA. $5,000,000. (1st unit), 1 story, 125,000 sq. ft. brick 32 unit SHOPPING CENTER, Northfield and Libby Rds., MAPLE HEIGHTS, O. Northfield Center Development Co., 4923 Lee Rd., Cleveland, O. CD 4/22.

Alger-Rau, Inc., 17024 Miles St., Cleveland, O. LB. Approx. $975,000. Junior HIGH SCHOOL, MENTOR, O. Bd. Educ., Mentor, O. Fulton, Krinsky & DelaMotte, 6014 Euclid Ave., Cleveland, O., archts. CD 4/8.

A. Siegler & Sons, 4923 Lee Rd., Cleveland, O. Owner Builds. $600,000. 44-house HOUSING, Commonwealth Ave., PARMA HEIGHTS, O.

▲ E. W. Hauser Constr. Co., Inc., 920 Lemcke Bldg., Indianapolis, Ind. CA, $1,000,000, large WAREHOUSE, INDIANAPOLIS, IND. Sears, Roebuck Co., 7 E. Congress St., Chicago, Ill. Awarded Nov. 15.

▲ E. H. Marhoefer & Co., 505 N. La Salle St., Chicago, 10, Ill., CA, $1,743,395, Norman Beatty Memorial HOSPITAL, WESTVILLE, IND. Bd. P. Wks., State House, Indianapolis, 4, Ind. Bids Oct. 30, awarded Nov. 20. CD 11/19, under LB.

▲ Ragner Benson, 4744 W. Rice St., Chicago, Ill., CA, $1,250,000, 2 story OFFICE addn., tower, bsmnt. addn. to 5 story building, CHICAGO, ILL. A. C. Nielsen Co., 2101 W. Howard St., Chicago, Ill. Bids Oct. 2, awarded Nov. 17. CD 9/24.

▲ Gust K. Newberg, 2040 N. Ashland St., Chicago, 14, Ill., CA, $1,750,000, HOSPITAL addn., Chicago, ILL.

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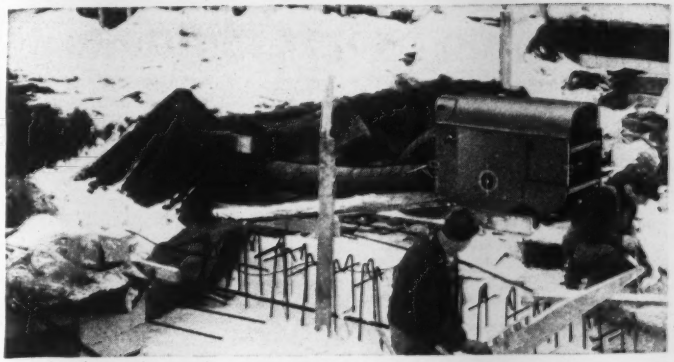

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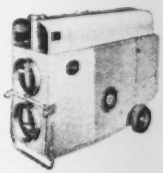

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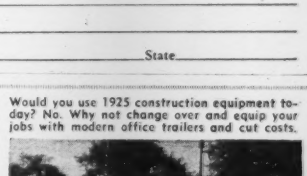

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...water Hospital, 5700 N. Ashland Ave., Chicago, Ill. Awarded Nov. 19. CD 9/16.

▲ **Darin & Armstrong,** 2041 Fenkel Blvd., Detroit, Mich., CA. $2,000,000, substructure 1 story, 450x500 ft. jet engine testing facilities, CHICAGO, ILL. Ford Motor Co., 3000 Scheaefer Rd., Dearborn, Mich. Bids Oct. 24, awarded Nov. 21. CD 10/22.

▲ **Carroll Constr. Co.,** 333 N. Michigan Ave., Chicago, 1, Ill., LB. $1,850,000, 2 story, 150x410 ft., steel, brick High SCHOOL, LIBERTYVILLE, Ill. School District 120, Libertyville, Ill. Bids Nov. 19. CD 10/22.

▲ **Steinle-Wolfe, Inc.,** 128 N. Jefferson St., Fremont, O. CA $6,866,428. six 14 story, brick Frederick G. Douglass APARTMENT bldgs., incl. 672 housing units, Hastings, Brewster, St. Antoine and Winder Sts., DETROIT, MICH. City, Detroit Housing Comn., 409 Griswold St., Detroit, Mich. CD 11/11, under LB.

Owen Ames & Kimball Co., 38 Pearl St. N.W., Grand Rapids, Mich. CA $531,560. brick, steel tuberculosis SANATORIUM, GRAND RAPIDS, MICH. Kent County Sunshine Sanatorium, 700 Fuller St. N.E., Grand Rapids, Mich. Bids Nov. 5. CD 1/9/51.

▲ **Francis J. Corr, Inc.,** 1120 Sheridan St., Lansing, Mich. LB. $1,126,940. general contract brick, steel mental HOSPITAL, State Home & Training School, LAPEER, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich. Bids Nov. 12. CD 10/15.

▲ **Pearson Constr. Co.,** Benton Harbor, Mich. CA. Est. $1,500,000 4 story, brick, steel concrete HOSPITAL addn., MUSKEGON, MICH. Mercy Hospital Sisters of Mercy, 1521 Jefferson St., Muskegon, Mich. Bids Oct. 15. CD 10/1.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
December 16, 17 Texas
STREETS AND ROADS
December 16 Nebraska, Texas December 17 Texas

BIDS ASKED—BUILDINGS

▲ **Tex., Waco**—DORMITORY—B.A. 12/19—Baylor University, 1401 S. 5 St., 3 story, 95,000 sq. ft. rein.-con. fdn. and frame, stone, partial bsmnt., 320-capacity women's dormitory. $750,000-$1,000,000. Easterwood & Easterwood, 601 Service Mutual Bldg., archts. R. S. Smith, Texas & Pacific Bldg., and Leonard E. Kanto, N. P. Anderson Bldg., Fort Worth, engrs. CD 7/17.

▲ **Tex., Galveston**—WAREHOUSE, etc.—B.A. 1/3—Galveston Wharves, 2324 Strand St., large warehouse across from 37th St. pier. Approx. $1,500,000; cotton storage warehouse, portion 275,000 sq. ft. tract $1,000,000; machine and garage shop, $200,000. Extended date. CD 11/19.

▲ **Tex., El Paso**—OFFICE—B.A. 1/6—El Paso Natural Gas Co., Bassett Tower, 16 story, bsmnt. office, $2,250,000. Edwin B. Carroll & L. Daeuble, Jr., 1001 E. Yandell Blvd., archts. CD 2/27/51, under LB.

SOON LETS CONTRACT—BUILDINGS

▲ **Tex., San Antonio**—DEPARTMENT STORE, etc.—Sears, Roebuck & Co., Romana Plaza, soon lets contract Contr. 1, department store, $1,742,400; Contr. 2, plumbing and gas lines, $108,000; Contr. 3, central heating plant, ventilating, $90,000; Contr. 4, automatic sprinkler sys. for main bldg., incl. main water lines, $85,000; Contr. 5, outside electrical work; Contr. 6, refrigeration unit, service station, $90,000; Contr. 7, site earthwork, grading, drainage, leveling, $125,000; Contr. 8, construction and paving auto parking area, $150,000. Bartlett Cocke, 3501 Broadway, San Antonio, George L. Dahl, 2101 N. St. Paul St., Dallas, and John Stokes Redden, c/o owner, 3609 Arthington Blvd., Chicago 7, Ill., archts. W. E. Simpson, Milam Bldg., engr. CD 11/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **State Hy. Comn., Jefferson City, Mo.,** rejected bids Oct. 17, 4 rein.-con. piers, 3 pneumatic 16,160 cu. yd. concrete, Cole and Callaway Counties, MISSOURI. LB $1,786,250. CD 10/22, under LB.

▲† **Walters Contg. Corp.,** 57-16 Woodside Ave., Woodside, L. I., N. Y. LB $1,055,765, est. $1,461,182 refueling and fuel storage facilities, hydrant sys., facilities:

Chicago Bridge & Iron Co. 332 S. Michigan St., Chicago, Ill. LB $99,800. bulk fuel storage. Eng. 23-028-53-26, Sedalia Air Force Base, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Nov. 18., CD 10/28.

▲† **Martin K. Eby Constr. Co., Inc.,** 610 N. Main St., Wichita, Kan. CA $1,534,992, est. $1,714,007. hangar and maintenance bldg., Sedalia Air Force Base, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Nov. 19. CD 10/29.

▲† **Baumann Constr Co.,** Nevada, Mo. CA $1,336,472, est. $1,472,057. constr. Group B bldgs., incl. fire station, telephone bldg., barracks, Sedalia Air Force Base, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Nov. 20. CD 10/17.

ARKANSAS—State Hy. Dpt., Little Rock.
Ellis & Koontz, Ft. Smith, Ark., CA, $70,314 blacktop and new overpass, 1.53 mi. Hy. 71, Bentonville, Benton Co.;

Forgren Bros., 3923 N. 23 St., Ft. Smith, Ark., CA, $98,012, grav. base course bit. 1 rein.-con., structural steel bridge 0.466 mi. Antoine River Bridges and approaches, FAP S-209 (8), Hy. 26, Clark and Pike Counties, CD 11/12;

McGeorge Contg. Co., Inc., foot of Nebraska St., CA, $584,877, blacktop 21.048 mi. Hy. 7, Perry Co., CD 11/6. Grand total, $753,203. Bids Nov. 21.

▲† **Western Constr. Corp.,** 400 Benson Bldg., Sioux City, Ia., CA $4,333,468, earthwork, Stage IV, Fort Randall Reservoir Proj., Lake Andes, Inv. 25-066-53-89, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Nov. 7. CD 11/11, under LB.

▲† **Peter Kiewit Sons Co.,** 1024 Omaha Natl. Bank Bldg., Omaha, Neb.; CA. $1,254,411, aircraft parking apron maintenance docks, Rapid City Air Force Base, Inv. 25-066-53-61, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Nov. 13. CD 11/18, under LB.

† **Olson Constr. Co.,** 410 S. 7 St., Lincoln, Neb. LB $680,886, bachelor officers quarters at Lincoln Air Force Base, Inv. 25-066-53-53, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Nov. 21. CD 10/28.

† **Trinity Constr. Co.,** P. O. Box 3024, Houston, Tex., LB $741,999, est. $1,113,710, embankment for relocation of Hy. 77 and R. R. at Garza Little Elm Dam, near Lewisville, CIVENG 41-443-53-12, TEXAS. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Nov. 18. CD 11/6.

† **COLORADO**—Bureau P. Rds., Dpt. Commerce, Bldg. 40, Denver Federal Center, Denver.

Lowdermilk Brothers, Box 150 Englewood, Colo., CA, $546,971, est. $496,326, 1.75 mi. Forest Hy. Proj. 29-P, Boulder-Idaho Springs, Boulder Co. Bids Oct. 28, awarded Nov. 20. CD 11/5, under LB.

John H. Keller, 3613 E. 44 Ave., Denver, Colo., LB, $505,978, sewage treatment plant, ENGLEWOOD, COLO. City, City Hall, Englewood, Colo. Bids Nov. 10.

▲† **Campbell & Kay,** Box 4091, Station A, Albuquerque, N. M., CA $1,167,153. range instrumentation sites, Serial No. Eng. 29-005-53-24, LAS CRUCES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Oct. 9. CD 10/17, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sauers Constr. Co.,** 1255 Larpenteur Ave. W., St. Paul, Minn. CA $1,196,198. Mounds View High SCHOOL, NEW BRIGHTON, MINN. Bd. Educ., Independent School Dist. 38, D. D. Wendt, clk., New Brighton, Minn. Bids Nov. 20. CD 10/28.

Lippert Bros. General Contractors, 2800 N. Santa Fe St., Oklahoma City, Okla. LB $676,594. HOTEL, PARSONS, KAN. Community Hotel Inc., Parsons, Kan. Bids Nov. 6. CD 11/6.

W. R. Grimshaw, Kome Bldg., Tulsa, Okla., CA. $510,000. est. $500,000. CHURCH EDUCATIONAL BLDG. addn., TULSA, OKLA. First Presbyterian Church, 709 S. Boston St., Tulsa, Okla. Awarded Nov. 6. CD 1/9.

▲† **Lembke, Clough & King, Inc.,** P. O. Box 245, Albuquerque, N. M. CA, $1,149,533 (incl. Alt.) masonry, frame SCHOOL, SHIPROCK, N. M. Bureau Indian Affairs, Dpt. Interior, Interior Bldg., Wash., D. C. Bids Nov. 19, awarded Nov. 20. CD 11/25, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 17, 18 California

SOON LETS CONTRACT—BUILDINGS

▲ **Calif., Inglewood**—HOSPITAL—Sisters of St. Joseph of Carondelet, c/o Albert C. Martin & Assocs., archts., 333 S. Beaudry St., Los Angeles, soon lets contract 4 story, rein.-con., Daniel Freeman Memorial Hospital. $2,500,000. CD 5/23/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **P. S. Lord Mechanical Contractors,** 4407 S.E. Milwaukie St., Portland, Ore., LB, $1,398,000, est. $1,680,000, 2 rein.-con. pumping plant with two 84 in. 1400 ft. steel sewers, RICHLAND, WASH. Atomic Energy Comn., Hanford Operations Office, Richland, Wash. Bids Nov. 18. CD 10/8.

▲† **S. A. Healy Co.,** 20 N. Wacker Dr., Chicago, Ill., LB. $6,798,101, est. $6,925,475, earthwork, pipe line and structures for San Jacinto-San Vincente Aqueduct, Station N-1968 plus 15 to S34 plus 26, San Diego Proj., Spec. DC 3822, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Dist. P. Wks. Office, Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids Nov. 20. CD 11/12.

▲† **A. Teichert & Son, Inc.,** 1931 Stockton Blvd., Sacramento, Calif., CA. $1,805,414. est. $2,000,000 Pacoima Wash improvement, Tujunga Wash to Arleta Ave. CIVENG 04-353-53-14, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Oct. 31. CD 11/6, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Robert E. McKee, Inc.,** 4700 San Fernando Rd., Los Angeles, Calif., CA. $2,786,439, general contract communicable diseases unit, Los Angeles County HOSPITAL;

A. S. Schulman Electric Co., 641 Imperial St., Los Angeles, Calif., CA. $673,379, electrical work for same, LOS ANGELES, CALIF., Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids No. 13, awarded Nov. 18. CD 11/21, under LB.

▲ **Austin Co.,** 618 Grand Ave., Oakland, Calif., CA, $2,500,000, pipe and conduit manufacturing PLANT, Central Ave. between Cherry Rd. and railroad, NEWARK, CALIF. Orangeburg Mfg. Co., Inc., c/o contractor.

L. C. Anderson Co., 3040 Hancock St., San Diego, Calif., CA. $548,900, 36,000 sq. ft. Mission Elementary SCHOOL, OCEANSIDE, CALIF. Oceanside-Libby Union School Dist., 210 S. Horne St., Oceanside, Calif. Bids Oct. 15. CD 10/30, under LB.

Howard J. White, Inc., 44 Encina Ave., Palo Alto, Calif., CA. $587,747, Louis Road, Charleston Road and Ventura Elementary SCHOOLS, PALO ALTO, CALIF. Palo Alto Unified School Dist., 543 Channing Ave., Palo Alto, Calif. Bids Nov. 17, awarded Nov. 19. CD 11/6.

F. E. Young, 2141 Main St., San Diego, Calif., CA, $934,500, JUVENILE HALL, SAN DIEGO, CALIF. San Diego Co., Civic Center, San Diego, Calif. Bids Oct. 28. CD 11/5, under LB.

▲ **Gainsford Manor, Mansfield Corp., Markin Co.,** 450 S. Beverly Dr., Beverly Hills, Calif., Owner Builds, $1,184,500, 133 frame, stucco DWELLINGS, Bona Vista Lane, Ceres, Elmore, Homage Ave., Luming Dr., WHITTIER, CALIF.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **U. S. Eng.,** Anchorage, rejected bids Nov. 13, 135,000 cu. yd. wet-mixed concrete, aggregate and grout at Ladd and Eielson Air Force Bases, Inv. 53-23, ALASKA. LB $4,591,075. New bids Dec. 2, under Inv. 53-40. CD 11/20, under LB.

CANADA

BIDS ASKED—BUILDINGS

▲ **Que., Montreal**—STATION—B.A. 12/22—R. A. Emerson, ch. engr. Canadian Pacific R.R., Windsor Station, Zone 3, 7 story, bsmnt., 60x300 ft., main bldg., addn., St. Antoine St. $1,500,000. Plans deposit $100. CD 11/21.

▲ **Ont., Toronto**—OFFICE—B.A. 12/23—Confederation Life Assn., 12 Richmond St. E., 10 story, 2 penthouses, bsmnt., sub-bsmnt., 175x175 ft. rein.-con., steel, brick, stone office bldg., Bloor St. E. Approx. $8,000,000. Wiggs Walford, Frost & Lindsay, 91 A Bloor St. W., engrs. Marani & Morris, 1250 Bay St., archts. CD 2/8.

▲ **Ont., Toronto**—ENGINEERING—B.A. 1/6—Hydro-Electric Power Comn. of Ontario, 620 University Ave., superstructure 5 story, 110x230 ft., steel, limestone engineering bldg., 2 story penthouse, Murray and Orde Sts. $3,000,000-$4,000,000. Sproatt & Rolph, 83 Cumberland St., archts. CD 1/25/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Robb Engineering Works Ltd., 51 La Planche St., Amherst, N. S., CA, $400,000, dock and terminal facilities Govt. Rys., PORT AUX BASQUES, NEWFOUNDLAND, Dpt. Transport, Ottawa, Ont. Bids Oct. 14. CD 9/26.

▲ **Swansea Constr. Co. Ltd.,** 363 Rogers Rd., Toronto, Ont., CA. $1,164,149, roads, walks, grading, sewers, watermains, Air Force Base, Downsview, TORONTO, ONT. Defence Constr. Ltd., 441 Queens Quay W., Toronto, Ont. Bids Sept. 30, awarded Nov. 15. CD 9/15.

▲ **Key Constr. Ltd.,** 1040 Bleury St., Montreal, Que., CA. $1,088,574, another section of Meuliur-Atlantic tributary sewer, MONTREAL, QUE. Municipality, City Hall, Montreal, Que. CD 6/8/51.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Provincial Constr. Co. Ltd.,** P.O. Box 1021, Vancouver, B. C., CA. $2,000,000, 2 story, 200,000 sq. ft. concrete slab DEPARTMENT STORE, NEW WESTMINSTER, B. C. Woodward's Department Stores Ltd., Hastings and Abbott Sts., Vancouver, B. C. J. C. Page, 101 W. Hastings St., Vancouver, B. C., archt. CD 12/12/45.

W. H. Cooper Constr. Co. Ltd., 21 Hunter St., E., Hamilton, Ont., CA, $500,000, ENGINEERING BLDG., Hillyard St., HAMILTON, ONT. International Harvester of Canada Ltd., Sherman Ave. N., Hamilton, Ont. Bids Oct. 10. CD 10/8.

Diamond Bros. Ltd., 2729 Bathurst St., Toronto, Ont., Owner Builds. $852,000, 142-suites, two buildings 80x172 ft., one building 76x118 ft., all brick, APARTMENT BLOCK, Victoria Park and Biscayne Aves., TORONTO, ONT. Wilfred Shulman, 463 Spadina Ave., Toronto, Ont., archts.

▲ **P. Aubuchon,** 155 Somerville St., Montreal, Que., Owner Builds, $1,000,000, BUNGALOWS, Henry and Racette Sts., MONTREAL NORTH, QUE.

W. C. Wells Constr. Co., Ltd., 140 Ave. F North, Saskatoon, Sask., LB, $766,047, PUBLIC BLDG., YORKTON, SASK. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Nov. 12. CD 10/23.

(Proposal Advertisements see pp. 122 to 124)

Contract awards maintain record pace

Heavy construction maintained its record pace in November.

Contract awards, as reported by ENGINEERING NEWS-RECORD, hit $1,080 million last month, and pushed volume for the first 11 months of '52 to a new record of $14.8 billion, 16% ahead of 1951.

Commercial building contracts rose sharply for the third consecutive month, racking up a total of $147 million. This was the biggest month on record for commercial building which is now running 24% ahead of the corresponding '51 period.

Contract awards for private mass housing totaled $246 million in November, contributing to an 11-month 1952 total that is 48% above the comparable period last year.

Industrial building settled down to $228 million in November, as against $365 million in October, but the November total still added up to a good month for industrial contracts.

• **Public works**—Bridge construction remained strong with $48 million in new contracts, a little under the post-Korea high of $54 million set in October of this year. Awards for streets and roads dropped to $66 million in November. This was substantially under the $115 million reported in October and the $110 million for September. For the year to date, awards for streets and roads are 23% ahead of 1951 and have set an all-time high in contract dollar volume for a single year.

Contracts for public buildings, including public housing, also dropped in November.

Public housing accounted for $23 million in awards. The total volume for the year in this category is 3% under 1951. Other public buildings had $138 million in November contracts, about half as much as October.

So far this year, public buildings contracts, excluding housing, are 112% ahead of 1951. This is due primarily to new Atomic Energy Commission projects which have almost $2.5 billion in awards.

Waterworks, with $18 million, and sewerage, with $28 million, fared about as well in November as in October. Waterworks volume this year is 6% above the corresponding 1951 period, while sewerage work is running 10% behind.

More construction money in '53

More mortgage money will be available in the second quarter of 1953, Miles Colean, economist, told a meeting of the National Retail Lumber Dealers Association.

Colean qualified the prediction, however. He said money for construction through mortgage financing would depend upon the extent to which banks and insurance companies reenter the market.

He also explained that this flow of mortgage money would be helped by an increase in interest rates for Veterans Administration and Federal Housing Administration-insured loans. Such an increase is expected under the new administration.

• **Urge end of controls**—The Lumber Dealers themselves urged an end to all controls—by permitting the Defense Production Act to expire.

NLRDA, in a resolution, called for action to "promptly unfreeze the fixed-interest rate on FHA and VA loans for residential construction in order that they may be competitive with the free-market rate of the conventional lender."

Private mortgage institutions were urged by the Lumber Dealers to provide a secondary mortgage market to end homebuilders' reliance on the Federal National Mortgage Assn.

Another resolution called for a return to the basing point system.

ENGINEERING CONSTRUCTION CONTRACTS—NOVEMBER, 1952

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Four Weeks—Thousands of Dollars (000 Omitted)

	November, 1952							U. S. Cumulative—Eleven Months		%	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1952	1951	Change '51 to '52	November 1952
Public Works											
Waterworks	197	1,631	5,573	686	3,714	5,753	17,554	206,407	195,254	+ 6	1,848
Sewerage	1,275	4,619	1,916	7,202	7,621	5,513	28,146	279,746	311,558	−10	2,950
Bridges	599	12,561	18,160	7,930	4,914	3,688	47,852	376,924	282,657	+33	1,471
Earthwork and drainage	157	167	10,055	535	7,773	10,602	29,289	453,425	472,186	− 4	724
Streets and roads	2,042	21,613	6,726	10,418	17,796	7,553	66,148	1,345,818	1,098,155	+23	6,437
Public buildings, residential	5,287	1,251	2,278	4,129	953	9,158	23,056	575,512	594,435	− 3	5,927
Other public buildings	11,663	24,277	50,558	18,032	16,415	16,798	137,743	4,175,041	1,970,978	+112	14,991
Unclassified	2,691	3,907	20,619	4,212	23,625	11,041	66,095	787,007	914,983	−14	12,680
Total public	**23,911**	**70,026**	**115,885**	**53,144**	**82,811**	**70,106**	**415,883**	**8,199,880**	**5,840,206**	**+40**	**47,028**
Federal government (included in above classifications)	9,989	13,363	60,772	6,650	35,721	24,789	151,284	4,370,766	2,139,405	+104	22,129
Private											
Bridges	.....	.....	150	.....	.....	.....	150	15,719	11,790	+33	.....
Industrial buildings	1,026	11,920	31,901	30,706	54,397	98,196	228,146	2,596,355	3,864,262	−33	7,607
Com'l buildings, residential	9,715	105,898	34,155	32,681	31,562	32,207	246,218	2,782,717	1,880,489	+48	11,996
Other commercial buildings	3,258	71,612	12,582	52,071	4,876	2,650	147,049	711,962	573,462	+24	3,200
Unclassified	.....	175	6,046	12,752	19,911	3,549	42,433	475,635	605,981	−22	520
Total private	**13,999**	**189,605**	**84,834**	**128,210**	**110,746**	**136,602**	**663,996**	**6,582,388**	**6,935,984**	**− 5**	**23,323**
Total Engineering Construction:											
November, 1952—4 weeks	**37,910**	**259,631**	**200,719**	**181,354**	**193,557**	**206,708**	**1,079,879**	.....	.....	.....	**70,351**
October, 1952—5 weeks	89,495	304,299	261,654	187,624	440,156	163,153	1,446,381	.....	.....	.....	**213,645**
November, 1951—5 weeks	39,523	219,676	165,186	166,400	317,891	116,099	1,024,775	.....	.....	.....	71,896
Eleven Months—1952	**586,975**	**2,445,801**	**3,526,000**	**3,254,440**	**3,219,873**	**1,749,179**	.....	**14,782,268**	.....	.....	**1,127,244**
Eleven Months—1951	584,220	2,396,629	2,613,850	2,233,175	3,158,360	1,789,956	.....	.....	12,776,190	+16	1,102,279
% Change '51 to '52	+0.5	+2	+35	+46	+2	−2	.....	.....	.....	.....	+2

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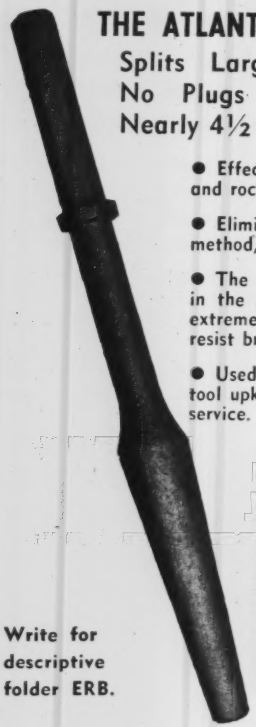

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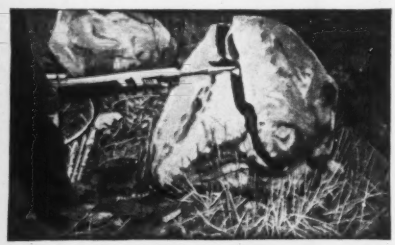

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Pennsylvania seeks financing for hospitals

The State of Pennsylvania is faced with the problem of financing a $30-million to $50-million expansion of the commonwealth's mental hospital system.

One method of meeting the problem will be offered to the forthcoming 1953 session of the state legislature, which will be asked to increase the borrowing capacity of the General State Authority by as much as $50 million. Because of constitutional limitations, the only way the state can finance multi-million-dollar projects without voter approval of constitutional amendments is through the General State Authority.

• **Refinancing turned down**—The GSA was created by the 1949 state legislature. It has been authorized to float bond issues totaling $235 million. This money is earmarked for construction. Pennsylvania voters, at the recent election, overwhelmingly rejected a plan to refinance GSA's bond issues. This created a serious problem.

All but $22 million of GSA's present legal borrowing limit already has been allocated for construction. The balance is earmarked tentatively for necessary projects, leaving no money available for new construction.

A survey estimated an additional 6,257 beds would be needed in state mental institutions. The construction cost of providing these facilities might run as much as $50 million. To obtain such a large sum through voter approval of constitutional amendments might take several years. However, if the legislature authorizes GSA to boost its debt limit, voter approval would not be required and funds would be assured for early construction.

Virginia authority plans port survey

The Virginia State Ports Authority has retained the New York firm of Coverdale & Colpitts, consulting engineers, to make a survey of Virginia ports, which will be used as the basis of the authority's development program.

It will cover present and potential water-borne commerce in Virginia, existing transportation and terminal facilities, port services, markets and other factors affecting freight and ocean rates and services. Rehabilitation and expansion of Virginia ports could involve huge expenditures for construction.

Plan completion of major expressway

Toledo City Manager Arnold V. Finch, in the midst of preparing the city budget for 1953, last week sought from the Ohio State Highway Department new cost estimates and a time schedule for completion of the $21-million Toledo Expressway.

Already, he has some unofficial information to work on. Roughly $18.8-million worth of construction remains to be done on the expressway and a bridge across the Maumee River that is the key structure in the project (ENR Sept. 6, 1951, p. 26). Of this amount, about $12.8 million is scheduled to be placed under contract next year.

Construction is moving ahead fast on the Maumee River Bridge wet piers under a $2.2-million contract with Merritt, Chapman & Scott Corp. Contracts for the dry piers are expected to be let next month, and for the superstructure in April. Howard, Needles, Tammen and Bergendoff, project consultants, had a Dec. 1 filing date on plans for the land piers and trestle work.

Contracts for the Summit St. interchange are expected to be let in July, and the expressway section from Front to Weedville Sts. next November.

• **Bridge structure**—Under Vernon L. Rock, MC&S superintendent on the Maumee River Bridge project, Pier No. 1 has been completed, and construction is racing ahead to advance Piers 2 and 5 before ice and high-water make the Maumee a difficult place to work during the coming winter months.

The two piers that flank the ship channel will support a bascule-type lift span. Each measures 130 by 54 ft and rises 15 ft above the water. The other three piers, off-channel, are 84½ by 10½ ft and rise approximately 40 ft above water. The five piers contain a total of 30,000 cu yds of concrete.

Construction involves driving 57,000 lineal ft of sheet piles for the five coffer-dams, dredging 20,000 cu yds of river bottom from within the coffer-dams, and driving 42,000 ft of steel bearing piles down 75 ft to bedrock.

Protruding from the top of the structure are "breather pipes" designed by the Ohio Highway Department to help dissipate the heat generated when the concrete is poured. These are of 24-in. diameter, and are used nine to a pier, extending from the base block to the top.

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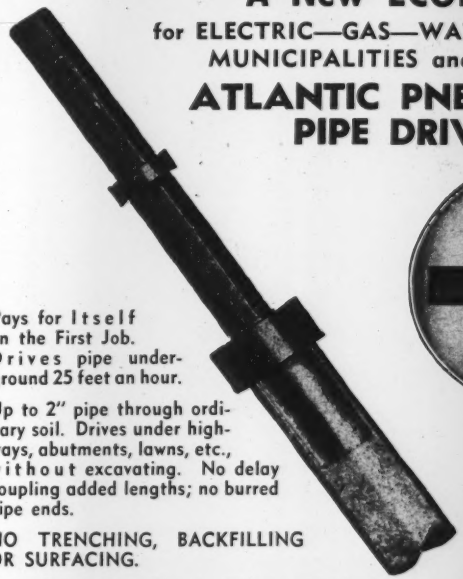

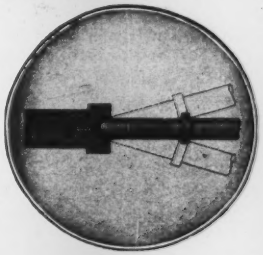

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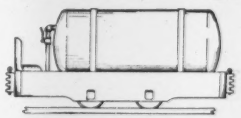

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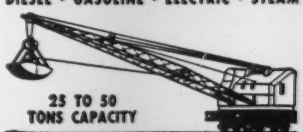

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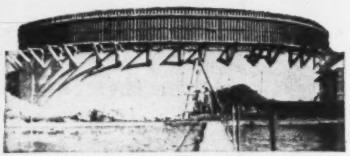

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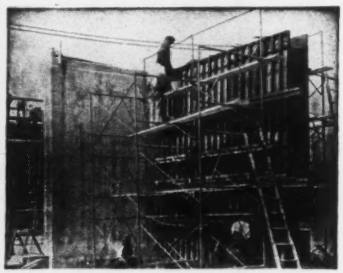

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BUSINESS AND FINANCE

Loan official sentenced

A sentence of five years in a federal penitentiary and a $24,000 fine was handed down last week in Federal District Court at San Diego, Calif., to the first of 24 persons indicted in connection with irregularities in financing of homes built under the Veterans Administration Insured Homes Plan.

Judge J. Frank McLaughlin, of Honolulu, who has been assigned to San Diego for the cases, imposed the sentence of Alton Bookman Jackson, who until shortly after his indictment was vice president of San Diego Federal Savings & Loan Assn. Jackson was convicted in a jury trial on eight counts of purchasing GI eligibility certificates from individual veterans at prices ranging from $100 to $300.

The case grew in part out of Teague Committee hearings in San Diego in December of 1951. Jackson also faces trial on several other indictments which also name former VA regional officials and contractors.

His sentencing came shortly after three contracting firm officials went on trial before Judge McLaughlin on charges of bribing a VA official and conspiring to bribe a VA official to influence his appraisal on a VA-insured home loan.

The contracting firm officials are Chris A. Cosgrove, Roy Russell Brockbank and Howard R. Mueller. Cosgrove is president of the Cosgrove-Brockbank-Mueller Co. which has done extensive tract home building in San Diego.

States studying school financing

School construction—and how to pay for it—was a prime topic in a number of states last week, including North Dakota, Maryland, Pennsylvania and Texas.

A bill to aid school districts in financing their building programs will be introduced in the 1953 North Dakota legislature at the request of the State Department of Public Instruction. Key to the North Dakota plan is provision for long-term loans from a state revolving fund.

The State School Equalization Fund in North Dakota now has about $13 million. The revolving fund for school construction would be started by taking $5 million out of this fund.

School districts would repay the loans over a 30-year period with money raised from 10-mill building fund levies which they would be required to impose in order to become eligible for the loans.

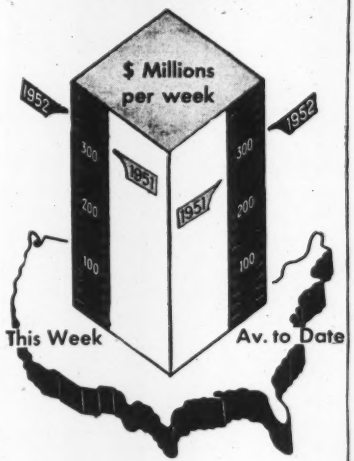
Meanwhile, in Maryland, it was reported that the legislature will be asked to approve an additional $30-million borrowing authority to finance school construction in Baltimore.

In Pennsylvania, the Philadelphia Board of Education announced last week that it plans to issue bonds to raise $27 million for expansion and improvement of school buildings.

Dallas, Tex., with a green light from the voters on a $24.8-million bond issue, will start construction early next year on a two-year emergency school building program.

Activity This Week

As reported to ENR
(in millions of dollars)



Contracts by type of work

	This Week	Cumulative 49 wks. 1952	1951	% chge
Waterworks	$3.0	$209.5	$199.0	+5
Sewerage	8.6	288.2	314.4	−8
Bridges	6.2	399.5	303.2	+32
Highways	26.2	1,371.6	1,121.7	+22
Earthwork, waterways	14.9	468.2	492.5	−5
Buildings:				
Public	34.7	4,209.6	1,986.1	+112
Housg., pub.	7.8	583.6	598.2	−2
Housg., priv.	80.9	2,863.6	1,926.4	+49
Commercial	72.1	784.0	583.9	+34
Industrial	46.6	2,642.9	4,004.0	−34
Unclassified	43.2	1,305.8	1,570.9	−17
Total	**$344.2**	**$15,126.5**	**$13,100.3**	**+15**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Year = 100 1913	1926	1949
Constr. cost	Dec.	587.49	282.41	123.16
	Nov.	588.61	282.94	123.39
Bldg. cost	Dec.	425.26	229.88	120.88
	Nov.	426.04	230.30	121.10
Volume	Nov.	504	205	146

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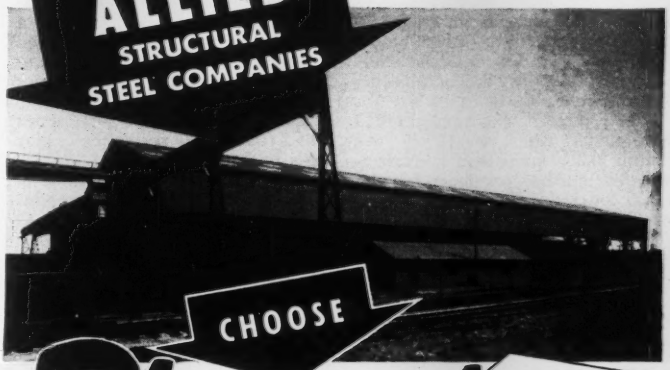

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Construction costs down as lumber prices fall

Falling lumber prices in seven cities brought small declines in ENGINEERING NEWS-RECORD's construction and building cost indexes for December.

This was the first decline in either index since mid-1951.

The construction cost index (1913 equals 100) stood at 587.49 this month, 0.2% lower than in November. The building cost index was also 0.2% lower this month as it moved to 425.26 (1913 equals 100).

The drop in lumber prices was concentrated in fir 2x4's which were reported down in 7 of the 20 cities covered. Pine 2x4's were lower in price in only two cities. The declines ranged from $1 per mftbm to $9 per mftbm.

• **Wages**—The only change in wage rates this month was a 26-cent raise for carpenters in Birmingham, Ala. The increase boosted their rate to $2.50 an hour. But more increases are in the making. San Francisco bricklayers are still negotiating for a 22.5-cent package increase. And structural ironworkers in Boston have started negotiations on a new contract which may be settled this month.

The price of cement remained the same this month. It has not changed since August. No change was reported in ENR's 3-mill average price of structural steel.

Here's the city-by-city rundown on price and wage changes this month:

Baltimore: Fir 2x4's dropped $9 to $101 per mftbm. Pine 2x4's also declined in price, going down $5 to $75 per mftbm.

Birmingham: Carpenters won a 26-cent raise; new rate, $2.50 an hour.

Boston: Fir 2x4's dropped $7 to $110 per mftbm. No change in price on pine 2x4's.

Cincinnati: Fir 2x4's went down $3.50 to $111.50 per mftbm. Pine 2x4's unchanged.

Cleveland: Fir 2x4's declined $2 to $102 per mftbm. No change in pine.

Detroit: Fir 2x4's down $6 to $105.50 per mftbm. Pine 2x4's down $1 to $101 per mftbm.

Test case filed

National Panelcrete, Inc., licensing agency for construction methods developed by William P. Neil Co., Ltd. and Buttress & McClellan, Inc., has filed suit in U. S. District Court in Los Angeles against O. K. Earl Jr., Inc., of Pasadena, Calif.

The suit charges infringement of a U. S. patent covering the Buttress & McClellan method of casting concrete building elements. The court action seeks an injunction against further infringement and general compensatory damages.

This is the first suit brought by Panelcrete and will be, in effect, a test case on enforcement of patents on tilt-up construction methods.

ENR Cost Indexes in 21 Cities

1913 = 100

City	Construction Cost 1952 Dec.	Nov.	1951 Dec.	Building Cost 1952 Dec.	Nov.	1951 Dec.
Atlanta	418	418	395	371	371	351
Baltimore	526	533	513	416	423	413
Birmingham	450	450	416	378	372	353
Boston	629	633	588	425	429	410
Chicago	661	661	624	433	433	413
Cincinnati	609	611	548	420	422	401
Cleveland	682	683	626	428	429	403
Dallas	455	455	437	382	382	371
Denver	612	612	564	462	462	425
Detroit	663	666	601	438	442	416
Kansas City	623	623	586	446	446	417
Los Angeles	610	610	569	415	415	398
Minneapolis	628	628	592	454	454	438
Montreal	512	512	484	395	395	385
New Orleans	466	466	435	397	397	379
New York	653	653	615	484	484	462
Philadelphia	636	636	582	480	480	461
Pittsburgh	607	607	557	439	439	416
St. Louis	628	631	587	447	450	427
San Francisco	559	560	527	390	391	379
Seattle	635	635	592	400	400	383

OFFICIAL PROPOSALS

Bids: December 15, 1952

DELAWARE RIVER PORT AUTHORITY
CAMDEN, NEW JERSEY
DEMOLITION AND REMOVAL OF BUILDINGS AND ERECTION OF A BRICK WALL

Sealed bids will be received for the Demolition and Removal of Buildings Numbers 529 and 531 Penn Street, Camden, New Jersey and other work on the site to be identified as Contract No. 12-A at the office of the Secretary of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 1:30 P.M. Eastern Standard Time, Monday, December 15, 1952 and then and there will be publicly opened and read.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the returns in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified or cashier's check in the sum of $3,000 payable to Delaware River Port Authority and drawn upon a National or State bank or trust company having an office either in Philadelphia, Pennsylvania or Camden, New Jersey and the Surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 percent, but in no case less than $25,000.

The Authority will afford prospective bidders an opportunity to inspect the work to be done.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids; and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO, SECRETARY

Bids: January 8, 1953

The Construction of the Grant Park Garage (North) at Monroe and Randolph Streets and Michigan Avenue Chicago, Illinois

THE CHICAGO PARK DISTRICT will receive bids until eleven (11:00) o'clock A.M., prevailing Chicago Time, on January 8, 1953, for the furnishing of materials, equipment, labor and services for the construction of the Grant Park Garage (North) at Monroe and Randolph Streets and Michigan Avenue, Chicago, Illinois, in accordance with the provisions of the Form of Proposal, Requirements for Bidding and Instructions to Bidders, Drawings, and Specifications, all of which are on file in, and may be obtained at the office of the undersigned.

Copies of said documents may be obtained by depositing with the undersigned the sum of Fifty Dollars ($50.00) for each set, which deposit will be refunded upon return of the documents in good condition within thirty (30) days after the date upon which bids are opened.

The Proposal shall be accompanied by a certified check in the amount of Three Hundred Thousand Dollars ($300,000.00) as a bid deposit.

The work includes, but is not confined to the following:

Construction of Grant Park Garage (North), Underground Utilities, Restoration of Park Facilities, and All Miscellaneous Work pertinent thereto. Among items included in the construction of the two level underground garage are the following major items:

1. Fifty Five Thousand Five Hundred (55,500) cubic yards of concrete
2. Three Hundred and Fifty Thousand (350,000) cubic yards of general excavation
3. Thirty Three Hundred (3,300) tons of reinforcing steel
4. Eight Hundred (800) tons of steel sheeting

The CHICAGO PARK DISTRICT reserves the right to reject any or all Proposals or to accept any Proposal which, in its judgment will be for the best interest of the public.

Only bids submitted in conformance with the provisions of the Requirements for Bidding and Instructions to Bidders will be considered.

CHICAGO PARK DISTRICT
By C. Wagner, Director of Purchases
Administration Building
425 E. 14th Boulevard
Burnham Park
Chicago 5, Illinois

Date: 12/4/52.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY. SEND ALL ADVERTISEMENTS TO CLASSIFIED ADVERTISING DIVISION, 29TH FLOOR, McGRAW-HILL PUB. CO., INC., 330 W. 42 ST., N. Y. 36, N. Y.

Bids: January 14, 1953

CITY OF NEW LONDON, CONNECTICUT
SEWAGE PUMPING STATIONS, FORCE MAINS, SEWERS AND APPURTENANCES

Sealed bids for the construction of Sewage Pumping Stations, Force Mains, Sewers and Appurtenances for the City of New London, Connecticut, will be received at the office of the City Purchasing Agent, Municipal Building, New London, Connecticut, until 2:30 P.M., Eastern Standard Time, on January 14, 1953, and then at said office publicly opened and read aloud.

The Information for Bidders, form of bid, form of contract, plans, specifications and form of performance bond, may be examined at the office of the City Purchasing Agent, New London, Connecticut, and at the office of Keis & Holroyd, Consulting Engineers, 257 Broadway, Troy, New York. Copies thereof may be obtained at the said offices of the City Purchasing Agent or Keis & Holroyd upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set within 30 days, will be refunded $20.00.

The City of New London, Connecticut reserves the right to waive any informalities in, or to reject any, or all bids.

A certified check made payable to the order of the City of New London, Connecticut, in the amount of five per centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter execute such contract and furnish a satisfactory bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successful Bidder will be required to furnish a performance bond satisfactory to the City of New London, Connecticut in the amount of the contract, and having as surety thereon such surety company or companies as are acceptable to the City of New London, Connecticut.

The work will be divided into three sections as follows:

Section I —Force Mains, Gravity Sewers and Appurtenances
Section II —Pumping Stations
Section III—Outfall Sewer

The work may be let as one contract or separate contracts may be let for each of the three sections except that manufacturers of cast iron pipe, cast iron specials, valves and valve boxes may bid directly to the City for furnishing these materials for Sections I and II.

No bidder may withdraw his bid within 40 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

THE CITY OF NEW LONDON, CONNECTICUT
By WILLIAM RUDDY, Purchasing Agent

Dated: November 24, 1952
Keis & Holroyd, Consulting Engineers
257 Broadway, Troy, New York

Bids: December 15, 1952

Bridge Construction

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 1207-W

Sealed proposals for constructing a 210 ft., 3 span girder bridge with 1,700 ft. of approach roads with necessary piling, riprap etc., on the Ednor-Mt. Zion Church Road over the Patuxent River, Montgomery County, Maryland, will be received at the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, until Monday, December 15, 1952 at 2:00 P.M., Eastern Standard Time, at which place and time they will be publicly opened and read.

Plans and specifications may be obtained from the office of the Chief Engineer of the Commission, Hyattsville, Maryland, upon deposit of $25.00, which deposit will be returned to bidders or to those returning plans and specifications in good condition.

Raymond W. Bellamy
L. S. Ray
J. Norman Ager
Commissioners

Attest:
James B. Parkhill
Secretary-Treasurer

Bids: December 30, 1952

Gasoline-Engine Generator Sets

GASOLINE-ENGINE GENERATOR SETS
CONTRACT 437

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, December 30, 1952, for Contract 437, for furnishing, testing, delivering and unloading gasoline-engine generator sets with switchgear and appurtenances for the West Branch and the Kensico South effluent chambers of the Delaware Aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to sureties, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHAN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: December 16, 1952

Wabash Memorial Bridge Over the Wabash River Near Mt. Vernon, Indiana

Sealed proposals will be received at the office of the Chairman, of the Indiana State Toll Bridge Commission, in Room 302, Indiana State House, Indianapolis, Indiana, until 10:30 A.M., Central Standard Time, on the 16th day of December, 1952. Said proposals will then be immediately publicly opened and read.

Proposals are for furnishing the materials and completely constructing a portion of a vehicular bridge over the Wabash River near Mt. Vernon, Indiana. It is intended that the award will be made for Contract I, "Bridge Substructure and Superstructure", and Contract II, "Toll House and Office Building"; to one or two bidders in separate contracts.

The bridge, together with approach roads, will provide a connection between Indiana State Route 62 and Illinois State Route 141. The approach roads are not a part of the work included in these contracts.

The bridge will serve highway traffic only and is to have a concrete roadway of 26'-0" clear width with 2'-0" safety curbs. The main spans will be through trusses of the three-span continuous fixed-arch type, spanning openings of 283½ feet, 441 feet and 283½ feet. The approach spans will consist of four units of three-span continuous girders, each span being 115' center to center of bearings and each unit totaling 345' in length. All substructure units will be reinforced concrete with the approach piers supported on steel bearing piles and the main piers founded on rock, approximately 29' below mean low water elevation.

In addition to the bridge construction, a toll house and office building will be constructed adjacent to the Indiana Highway approach road.

Final estimates indicate that the construction will require approximately 2,125 tons of structural carbon steel, 340 tons of structural low-alloy steel, 10,300 cubic yards of concrete, 400 tons of reinforcing steel and 12,200 lineal feet of steel piling.

The Bureau of Public Roads, U. S. Department of Commerce, the claimant agency under the National Production Authority has advised that the project meets the criteria of essentiality and is eligible for an allotment of controlled materials. Contractors requesting plans will be advised of the quarterly allocations as soon as this information is available. Steel sheet piling for temporary use will not be included in this allocation as it can be purchased or rented by the Contractor as equipment.

Proposals shall be submitted in sealed envelopes addressed to the Chairman of the Indiana State Toll Bridge Commission, Room 302, Indiana State House, Indianapolis, Indiana.

Copies of the plans, proposals and special provisions are on file at the following addresses:

1. Walter G. Koch, Chairman
   Indiana State Toll Bridge Commission
   c/o International Steel Corporation
   Evansville 7, Indiana
2. Sverdrup & Parcel
   Consulting Engineers
   118 Syndicate Trust Bldg.
   St. Louis 1, Missouri
3. F. W. Dodge Corporation
   American Building
   30 East Central Parkway
   Cincinnati 2, Ohio
4. F. W. Dodge Corporation
   Architects & Builders Bldg.
   334 North Pennsylvania
   Indianapolis 4, Indiana
5. F. W. Dodge Corporation
   Vaughan Building
   300 West Main
   Louisville 2, Kentucky

These plans, proposals and special provisions will be furnished prospective bidders at the office of Sverdrup & Parcel, or copies will be forwarded upon receipt of request for same. In either case, the following charges will be made for these documents.

Bridge Substructure and Superstructure—Contract I $20.00
Toll House and Office Building—Contract II 5.00

Checks should be made payable to "Sverdrup & Parcel." No refunds or credit will be made for material returned.

Proposals should be made upon Standard Forms furnished by the Indiana State Toll Bridge Commission. Bidding proposals will be furnished no later than 9:30 A.M., Central Standard Time, on the day of letting.

The right is reserved to reject any or all bids, to advertise for new bids, to waive technicalities or to award on any bid that is most advantageous to the Commission.

INDIANA STATE TOLL BRIDGE COMMISSION
Walter G. Koch, Chairman

November 24, 1952

U. S. Government

Department of Commerce, Bureau of Public Roads, November 24, 1952. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., DECEMBER 19, 1952, for Project 1B5-C4, Baltimore-Washington Parkway, Prince Georges County, Maryland, 3.151 miles Concrete Paving and other work from Defense Highway to point about ¼ mile north of Good Luck Road. The approximate quantities of the more important items are: 100,000 cu. yd. Borrow for Topping, 90,000 sq. yd. Reinforced Cement Concrete Pavement, and 5,200 units of Seeding. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above. H. J. Spelman, Division Engineer.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3848) will be received at Denver, Colorado, until December 30, 1952, for furnishing steel structures for transformer circuits and switchyard at Folsom Power Plant and transformer structures at Nimbus Power Plant for Folsom Unit, American River Division, Central Valley Project, California. Delivery is desired within 270 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner

OFFICIAL PROPOSALS

Bids: December 18, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 18th day of December 1952, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 3				
		William Robinson, District Engineer, Weigh Lock Building, Syracuse, New York				
Cayuga & Seneca	O. T. 52-23P R. C. 52-120	New York State Thruway Ontario section, sub. 3 (Tyre—¾ mile west of Montezuma) Halsey Corners—Savannah Pt. 1 S. H. 8323	4.15 Thy. 0.63 Acc.	8" & 9" Cem. Conc. Pavt. 2 @ 25' Var. Wide=4.78 Mi. Gr. Sep. Alpha I Beam 212.21' Dk. Plate Girder Bridge 620' Twin Conc. Bx. Br. 40'	$215,000 Plans $50	$3,916,000
		DISTRICT No. 5				
		C. R. Waters, District Engineer, 65 Court St., Buffalo, New York				
Erie	O. T. 52-22 S. T. 52-34	New York State Thruway Ontario Section, sub. 14 (Transit Rd. Ransom Rd.) Transit Rdk Interchange Gunville Rd.; Marginal Rds.	5.46 Thy. 3.46 Acc.	2 Cnse Cem. Conc. Pavt. 2 @ 25' Var. Wide=5.72 Mi. Asph Conc. Type 1A Opt.=0.03 Mi. Bit. Mac. Ty. 1=1.11 Mi. Bit. Treated Gravel=0.94 Mi. Misc. Work=0.12 Mi. 4 Gr. Seps. Alpha I Beam 201.5', 155.01', 145.54', and 225.9' 1 Gr. Sep. (R.R.) Alpha I-Beam 252'	275,000 Plans $50	5,000,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Bids: December 15, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 15th day of December 1952, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following project: in ROCKLAND & WESTCHESTER COUNTIES: J. S. BIXBY, DISTRICT ENGINEER, PLEASANT VALLEY ROAD, POUGHKEEPSIE, N. Y.

Contract No.	Type	Name of Highway and Miles	Deposit for Plans	Bid Deposit	Department Estimate
H T. 52-4	Bridge Superstructure (Tied Steel Arch, Deck Girders & Alph. I-Beam) Including Steel Towers	New York State Thruway-Hudson Section, Subd 9B (Tappan Zee Bridge) 3 miles	$100	$1,800,000	$35,764,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineer noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3845) will be received at Ephrata, Washington until December 30, 1952, for furnishing labor and materials for earthwork, pipe lines, and structures for Area P-8 laterals, sublaterals, and wasteways, Potholes East Canal Laterals, Columbia Basin Project, Washington. Location: West of Eltopia, Washington. Principal items are: 490,000 cu. yds. excavation; 1,930 cu. yds. concrete; 31,000 lin. ft. concrete pipe; 9 outdoor-type pumping plants; 73,000 lbs. gates and other metalwork; and other work. Completion time 410 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.

OFFICIAL PROPOSALS

Bids: December 18, 1952

Construction of Turnpike

WEST VIRGINIA TURNPIKE COMMISSION.
ADVERTISEMENT FOR PROPOSALS
NOTICE OF RE-ADVERTISEMENT

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT NO. 10

The work to be done under this Contract consists in performing the required grading and drainage for approximately 3.0 miles of the West Virginia Turnpike including the relocation of approximately 0.2 miles of side roads. This work is located between the North Portal of the Standard Tunnel, mile 68.3, and the Town of Miami, mile 71.3, Kanawha County, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

	Approximate Quantity
Clearing and Grubbing	82 Acres
Excavation (all types)	1,650,000 C.Y.
Embankment	732,000 C.Y.
Concrete	3,600 C.Y.
Reinforcing Steel	203,000 Lbs.
Culvert Pipes and Underdrains —2600 Pipe	4,000 Lin. Ft.
Concrete Cribbing	16,400 Cu. Ft.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A.M. Eastern Standard Time, on December 18, 1952, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after November 20, 1952, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and at the offices of the Engineers, Gannett, Fleming, Corddry & Carpenter, Inc., 123 Forster Street, Harrisburg, Pennsylvania, and at 6218 Penn Avenue, Pittsburgh 6, Pennsylvania, and at Chesapeake, West Virginia.

Contract plans and specifications will be furnished for Fifteen Dollars ($15.00) for each set, which is not refundable, upon application to Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia. Mailing Address: P. O. Box 5266, Capitol Station, Charleston, West Virginia. Cross Sections are bound separately and will be furnished for Forty Dollars ($40.00) for each set. Make checks payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be made upon the proposal forms furnished by the Commission in the manner designated in the Specifications, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a CASHIER'S or CERTIFIED CHECK or PROPOSAL BOND in favor of the West Virginia Turnpike Commission FOR NOT LESS THAN FIVE (5) PER CENT OF THE AMOUNT OF THE PROPOSAL, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the day and hour named. Copies of the proposal form and proposal bond form to be used for submitting proposals, and of the special addressed envelope are furnished in detached form with the contract documents.

The contract will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

WEST VIRGINIA TURNPIKE COMMISSION
D. HOLMES MORTON, Chairman
November 20, 1952

CONTRACTORS WATCH THIS SECTION
for New Projects
Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

SALARIED POSITIONS $3,500—$35,000

We offer the original personal employment service (established 42 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N. Y.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

UNDISPLAYED RATE

$1.50 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.
POSITION WANTED and Individual Selling Opportunity undisplayed rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.
Replies are forwarded each day as received at each of the offices mentioned without additional charge.
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

The advertising rate $17.10 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
An advertising inch is measured ⅞ inch vertically on one col. 3 col.—30 inches to a page. E.N.R.

NEW ADVERTISEMENTS: Address N. Y. office, 330 W. 42nd St., N. Y. 36, N. Y., for December 18th issue, closing December 8th.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

COMPUTOR FOR established concern, experienced in subdivision and property surveys, location Western Suffolk County, Long Island, N. Y. Write Stating salary requirements. P-6071, Engineering News-Record.

DESIGN ENGINEERS—Men having experience in design and preparation of drawings and reports for highway, sanitary sewer and municipal-type storm drainage systems including inlets, collection systems, interceptors and culverts. Good pay for qualified men with training and experience. Opportunity for advancement. Furnish full information regarding education, training and experience, age, references and salary required. Replies strictly confidential. P-6036, Engineering News-Record.

DESIGNERS-DRAFTSMEN, for highways and bridges. Excellent opportunities. Be prepared to submit complete experience record. Ammann & Whitney, Consulting Engineers, 76 Ninth Ave., New York 11, N. Y.

EXPERIENCED ESTIMATOR and Chief Engineer between the ages of 35 and 45, to take complete charge of office—make quantity takeoffs—help price—buy—expedite and do some field supervision. All our work is competitive. We specialize in industrial, commercial and public works. Only experienced and high-grade men need apply. Permanent job for right man. Excellent salary and bonus. Office located in Ohio. Send qualifications, experience. Photograph optional. P-5978, Engineering News-Record.

PLUMBING ESTIMATOR—Experienced man capable of assuming responsibility to take charge of estimating and contract work. This is an exceptional opportunity with an old established plumbing contractor located in Connecticut. Write fully stating experience, reference, education, marital status and salary details. P-5991, Engineering News-Record.

QUANTITY SURVEY Man with thorough knowledge of building construction details to act as assistant to chief. Must have substantial experience with General Contractors, public work preferred. Write full details. Do not bother to answer unless you have proper background. Will pay $10,000 per annum to right man. Location Washington, D. C. P-6116, Engineering News-Record.

SURVEY PARTY Chiefs and Instrumentmen—Men having experience in Topographic, Property and Utility layouts. Good pay for qualified men with training and experience. Opportunity for advancement. Furnish full information regarding education, training and experience, age, references and salary required. Replies strictly confidential. Dept. of Public Works, Baltimore County, Towson 4, Maryland.

WANTED: CONSTRUCTION Superintendent for industrial and commercial construction; located Middle Atlantic States. Send full particulars: education, experience and salary in first letter to Lewis C. Bowers & Sons, Inc., 341 Nassau St., Princeton, N. J. Atten: J. R. Pelikan.

WANTED: CONSTRUCTION Engineers. Minimum 5 years' experience on industrial construction. Ages 30-45. Send full particulars: education, experience and salary in first letter to Lewis C. Bowers & Sons, Inc., 341 Nassau St., Princeton, N. J., Atten: J. R. Pelikan.

POSITIONS WANTED

CIVIL ENGINEER, 18 years experience in heavy construction. Dams, powerhouses, buildings and other concrete structures. Preparations of estimates, bids, schedules, cost reports, etc., and active supervision of engineering and/or construction of project. Prefer position as chief engineer or project manager with prime contractor. Foreign or domestic. Complete resume upon request. PW-6068, Engineering News-Record.

GEOLOGIST—UNIV grad, Single, Age 29. 1½ yrs. in analytical chemistry, 5 years in publications—desires a position in which these qualifications can be used—Midwest preferred. PW-6146, Engineering News-Record.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-first year. Write today.
WILSON Engineering Corp.
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

SUPERINTENDENTS AND PROJECT MANAGERS TRAINING COURSE
All instruction by mail. Send today for sample lesson and complete details
GEO. E. DEATHERAGE & SON
5 E. Preston St. Baltimore 2, Maryland

POSITIONS WANTED

CIVIL ENGINEER, 25, married, desires position in California. 1 year experience Govt. Agency —2 years field and office work with general contractor. PW-6157, Engineering News-Record.

CIVIL ENGINEER, 42, German, presently employed U. S. Air Force, building Air Fields and other heavy construction in Germany speaks several languages, can take complete charge of projects, will go anywhere in U.S.A. or other foreign countries. Excellent references. PW-6163, Engineering News-Record.

CIVIL ENGR. 30, married, B.S. C.E. Purdue Univ. 1948, 3 yrs. experience as Field Engr. in Strip mine, 1 year service with Army Engrs. in Korea. Desires position with contracting firm. Location preferred Southeast. Available January 1. PW-6174, Engineering News-Record.

CONSTRUCTION ENGINEER C.E. graduate, age 52, long administrative experience all phases large scale general contract building in Field and Office. Employed seeks new connection. PW-6137, Engineering News-Record.

CONSTRUCTION ENGINEER, C.E. graduate, age 34. Experienced on large construction projects—Dams, Pipe Lines, Atomic Energy Projects, etc. PW-6090, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, concrete pipe manufacturer, considerable experience. PW-6086, Engineering News-Record.

ENGINEER, GRADUATE C.E.; 30; married. 7 years heavy construction, excavation, foundations, public works. Experienced administration, estimating, office-engineering. Knowledge home-building and real estate. N. Y. Employed, will relocate for responsible position with future. PW-6143, Engineering News-Record.

EXECUTIVE ENGINEER, long experience, management large company, heavy construction docks, foundations, tunnels, difficult subaqueous structures, etc. PW-5428, Engineering News-Record.

POSITIONS WANTED

REGISTERED CIVIL Engineer with background of construction supervision, general management, promotion and heavy equipment sales. Presently employed as manager of a general construction company. Midwest location preferred. PW-5975, Engineering News-Record.

SANITARY ENGINEER, B.E. (Civ.), M.S. (San.), 4 years experience, design and operation, water treatment and distribution, sewerage and sewage treatment. PW-6070, Engineering News-Record.

SUPERINTENDENT OF Maintenance & equipment, 28 years experience as operator, mechanic, foreman and super. of equipment. Sober, reliable. PW-6032, Engineering News-Record.

PART TIME WORK WANTED

CONSTRUCTION BID Estimates and quantity surveys for Architects, Engineers and Contractors in the Cleveland Area. Write PTWW-6005, Engineering News-Record.

BUSINESS OPPORTUNITY

Investment Offered—

Civil Engineer, young, Lic. P.E.-N.Y.; B.S.-M.I.T.; M.S.-Columbia. Seven years varied experience teaching, consulting, waterfront structures, public works. Desires association with Civil or Consulting firm with or without immediate investment. BO-6105, Engineering News-Record.

• WANTED •
INDUSTRIAL PLANTS
Will arrange thru purchase of (1) Capital stock, (2) Assets, (3) Machinery and equipment, whole or in part—Personnel usually retained, strict confidence. **Box 1351**, Church St. Sta., New York 8, N. Y.

ATTENTION CONTRACTORS:
List your equipment with us for quick sales. We also store your equipment in our yard for a small fee until sold if you desire.
Consult us for your equipment needs.
FINEST CONSTRUCTION & EQUIPMENT CORP.
147-47 Farmers Blvd., Jamaica 5, N. Y.
Tel. LA 7-3637

NOTICE
EXCAVATING CONTRACTORS
275,000 CUBIC YARDS OF DIRT TO MOVE
We are accepting bids on the removal of 275,000 cubic yards of dirt to be moved on our premises. Maximum haul 1000 yards. Ten acres of timber clearing to be done. Bids due at our office December 15, 1952. Work to start not later than January 1, 1953 and to be fully completed in approximately ninety (90) days.
If interested please write or phone for full specifications of cuts and fills.
FORT LINCOLN CEMETERY
3201 Bladensburg Road Washington 18, D. C.
Lincoln 3-3578

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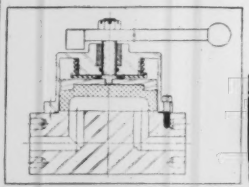
Mechanical DRAFTSMAN?

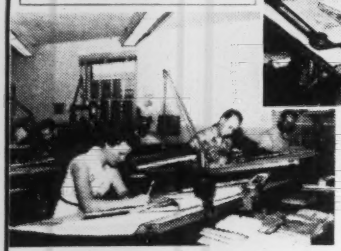
if so, you'll enjoy working with . . .

GENERAL ELECTRIC

at HANFORD WORKS

Richland, Wash., Atomic Energy Plant





- Top Salaries
- Challenging, Steady Work
- Good Working Conditions and Drafting Equipment
- Liberal Benefit Plans

You'll also enjoy Richland's sunny, dry climate . . . the superb scenery of the Pacific Northwest. And your work . . . steady, interesting and challenging . . . will be in the new field of Atomic Energy.

Priority housing is yours, also. Moderate rentals, variety of homes to choose from in Richland, 24,000 population. Dormitories for single people.

General Electric Company's benefit plans . . . health and life insurance, stock bonus plan, paid vacations and holidays, retirement plan . . . all add up to Good Employment.

WRITE TODAY for additional information and application.

GENERAL ELECTRIC

Richland, Washington

ENGINEERS WANTED

STRUCTURAL ENGINEER

Graduate Engineer, 10 years experience, design of heavy structures with emphasis on long span bridges.

ELECTRICAL ENGINEER

Graduate Engineer, minimum 5 years experience, power distribution, building services and communications.

MECHANICAL ENGINEER

Graduate Engineer, minimum 10 years experience in design of mechanical building services and distribution, boiler houses and steam distribution. Some experience in heavy machinery desirable but not essential.

LIBERAL SALARIES

commensurate with experience and ability. Vacations with pay and other benefits.

SUBMIT COMPLETE RESUME

of education and experience, salary requirement, references, and availability date with first letter.

PALMER & BAKER, INC.

Consulting Engineers
Architects - Naval Architects
Marine Engineers

P. O. BOX 346

MOBILE ALABAMA

SALESMAN

Call on heavy duty truck fleets. Contractors and industrial accounts in Bucks County, Penna., and southern New Jersey counties. Representing distributor of air cooled and liquid cooled gasoline and diesel engines and electric plants. Must have practical experience on internal combustion engines and able to do necessary field service. Good successful sales record required. Salary, expenses and commission. Permanent, good field with well established company. Replies must be detailed, give age, education, experience, positions held, earnings and availability.

SW-5950, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

COST ENGINEER

Unusual opportunity for Cost Engineer on major plant project in California. Requires cost and construction experience, but principal qualifications are intelligence, interest and ambition. Functions include unit cost analysis, special cost reports and cost forecasts. A responsible position and one offering opportunity for advancement in an expanding, progressive organization.

Write giving complete qualifications, references and salary requirements. Your reply will be held confidential.

BECHTEL CORPORATION
220 Bush Street
San Francisco, California

The Tennessee Valley Authority wants Civil, Structural, and Office Engineers and Estimators. The work is design and construction of large steam electric and hydro-electric projects and transmission systems. Salaries start at $3700-$4450 and $5325 for 40-hour week. All jobs carry automatic within-grade increases for satisfactory service, liberal vacation leave, sick leave, and retirement benefits. Design and estimating jobs are in Knoxville and Chattanooga, Tennessee. Field and office engineering jobs are at construction sites in the Tennessee Valley area and at Paducah, Kentucky. Write the

TENNESSEE VALLEY AUTHORITY

Division of Personnel

KNOXVILLE TENNESSEE

CHEMICAL ENGINEERS AND CHEMISTS FOR APPLICATION RESEARCH IN Fluorocarbon Polymers WITH Leading Organization in Petroleum & Petrochemical Fields

OPPORTUNITY to join a staff of highly trained and experienced scientists where initiative and ability form the basis for salary and increasing responsibility. The work involves the development of industrial and commercial outlets for new products, and these positions can lead to important jobs in technical service or chemical sales.

QUALIFICATIONS—3 to 5 years' experience in protective coatings, rubber compoundings, films and fibers. Ph. D. helpful but not essential. Applicants should have a pleasing personality and be able to deal with customers on a high technical level.

LOCATION—These research laboratories are conveniently located in metropolitan New Jersey.

(Two 1952 graduates interested in this type of work will be considered for our training program.)

Please send complete resume of background and experience and include salary desired. Interviews will be arranged promptly for qualified applicants.

Box #197, Room 1201
230 West 41 St. New York 36, N. Y.

ENGINEERS and DESIGNERS

Arthur G. McKee and Company has permanent openings in their Cleveland, Ohio and Tulsa, Oklahoma offices for qualified men as:

Instrument Specifications Engineers
Piping Designer
Pressure Vessel Designers

with experience in petroleum refinery design.

Good hourly rates plus overtime
45 hours—5 days per week
Annual profit-sharing bonus
No age limitation

These opportunities are well worth your while to investigate.

Write giving details of background and experience.

ARTHUR G. McKEE & CO.
2300 Chester Ave. Cleveland 1, Ohio

CONSTRUCTION ESTIMATOR

Qualified Estimator, thoroughly experienced in estimating and quantity take-off. Background in power plant work, process piping and general industrial construction absolutely essential. State education, experience, qualifications and salary requirements. All applications will be acknowledged.

P-5997, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

Yes, Lockheed can train you—at full pay!

The step up to Aircraft Engineering—and a better life in Southern California—isn't as steep as you might expect.

Aircraft experience isn't necessary. Lockheed takes your knowledge of engineering principles, your experience in other engineering fields, your aptitude, and adapts them to aircraft work. You learn to work with closer tolerances, you become more weight conscious.

What's more, Lockheed trains you *at full pay*. You learn by doing—in Lockheed's on-the-job training program. When necessary, you attend Lockheed classes. It depends on your background and the job you are assigned. But, always, you learn at full pay.

These opportunities for engineers *in all fields* have been created by Lockheed's long-range production program—building planes for defense, planes for the world's airlines.

And remember this: When you join Lockheed, your way of life improves as well as your work.

Living conditions are better in Southern California. The climate is beyond compare: Golf, fishing, motoring, patio life at home can be yours the year 'round. And your high Lockheed salary enables you to enjoy life to the full.

Note to Men with Families: Housing conditions are excellent in the Los Angeles area. More than 50,000 rental units are available. Thousands of homes for ownership have been built since World War II. Huge tracts are under construction near Lockheed.

Send today for illustrated brochure describing life and work at Lockheed in Southern California. Use handy coupon below.

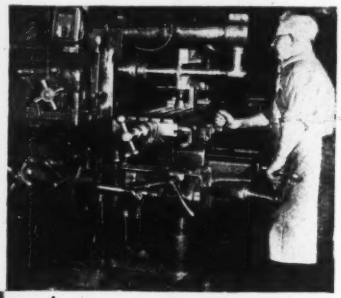
ENGINEER TRAINING PROGRAM
M. V. Mattson, Employment Mgr., Dept. ENR-12

LOCKHEED
Aircraft Corporation
Burbank, California

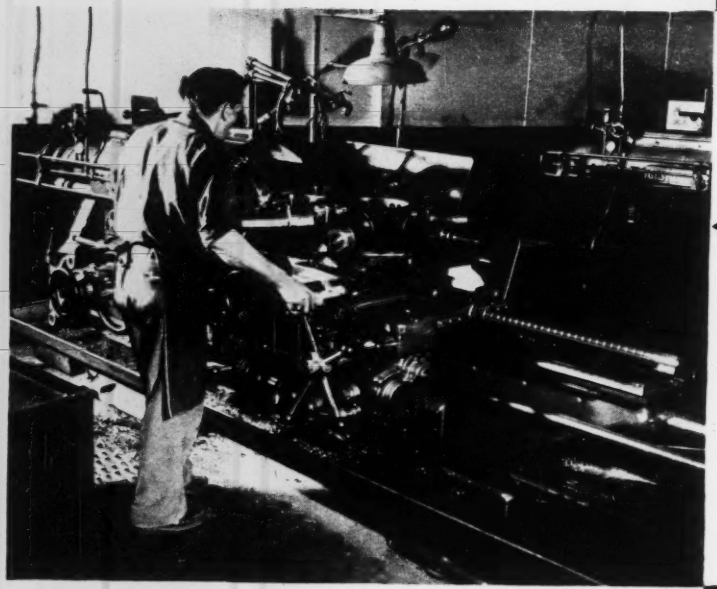
Dear Sir: Please send me your brochure describing life and work at Lockheed.

My Name _____
My Field of Engineering _____
My Street Address _____
My City and State _____

He works with Doctor-like thoroughness

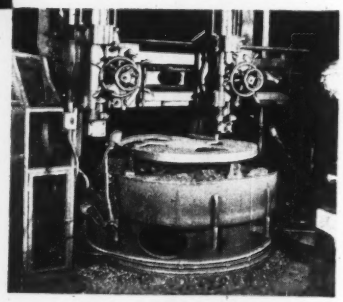


Milling operation on #3 Brown Sharpe milling machine.
Milling slot in Hoist control lever for American locomotive crane now being rebuilt for Bobcock-Wilcox Tube Co., Barberton, Ohio.



Turret Lathe operation on #5A Gisholt turret lathe.
Turning—boring—facing and cutting to length, Bronze bushings for Lorain 820 turntable rollers. With parts in short supply as they are today, the ability to help ourselves is money in our customers' pockets.

Boring mill operation on 60 in. Niles vertical boring mill.
Turning and facing cylinder end casting for Robot laundry washer.



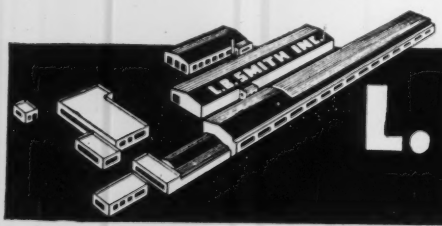
Rebuilding—to make like new—
CONSTRUCTION EQUIPMENT

AN INVITATION

To Use the World's Largest Equipment Rebuilding Facilities

Where rebuilding is a business—with over 25 years of experience on all types of construction equipment—where highly trained mechanics with precision tools—can build back into your equipment many years of additional and efficient usefulness—using the same thoroughness employed in rebuilding our own used equipment.

You are invited to investigate our complete facilities.



L. B. SMITH INC.

CAMP HILL, SUBURB OF HARRISBURG, PA.

L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 1 NO. 9

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.
Gardner-Denver 500 cu. ft. diesel, good operating condition.
Schramm 105 cubic foot gas powered compressor on 4 steel wheels.
Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condiiton.
Paving breakers, jackhammers, wagon drills, tie tampers.

QUARRY EQUIPMENT & BINS

2540 Cedarapids AAAA primary unit on rubber, diesel power. Rebuilt.
2436 Lippman "Grizzly King" w/hopper, undercrusher conveyor, 75 HP motor.
2036 Cedarapids AAA primary unit on rubber, diesel power. Rebuilt.
1036/2418 Cedarapids Jr. Tandem unit on rubber.
Cedarapids Rock-It plant w/2025 jaw, 3033 hammermill. New.
1236 Cedarapids Model 6C plant. New.
4033 Cedarapids Model 6C plant. New.
2020 Cedarapids double impeller. New condition.
4024 Cedarapids roll. Rebuilt.
3018 Cedarapids roll. Rebuilt.
1236 Cedarapids twin jaw crusher. New.
4033 Cedarapids hammermill. New.
10x7 Allis Chalmers Blake type jaw crusher. Rebuilt.
#1 Cedarapids Kubit impact breaker. New condition.
B-3 Jeffrey swing hammer pulverier. Rebuilt.
4' x 6' Kennedy Van Saun single deck screen.
3' x 6' Kennedy Van Saun triple deck screen.
60" dia. x 14' long Traylor revolving screen. Rebuilt.
36" Wemco single pitch sand screw. New condition.
15 cu. yd. Cedarapids sand drag. New.
16" x 90' bucket elevator.
60-ton, 2-compartment, 8' x 18' storage bin w/clam gates.
100-ton, 2 compartment, 13'x23' storage bin.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.

TRUCKS—TRAILERS

27FD Euclid rear dumps.
28FD Euclid rear dumps.
1½-ton Ford with any body.
2000-gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

Osgood Model 900, 1¾ yd. diesel combination.
Lorain 40 truck crane on Mack 3-axle truck.
Lorain TL, ¾ yd. diesel.
Unit 514, ½-yd. gasoline crawler shovel. Good condition.

SHOVEL & CRANE ATTACHMENTS

Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
McCaffrey Model 648 for 1¼ to 2-yd. crane.
McCaffrey Model 636 for ¾-yd. to 1-yd. crane.

BACKHOE BUCKETS & ATTACHMENTS

Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS #6105, 44" cutting width.
¾-yd. Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

LIFTING MAGNETS

1—45" Ohio lifting magnet, rebuilt.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.
New Lima 1-yd. Amsco, LBS #2295.
Bucyrus-Erie 1¼-yd. gas air, LBS #3782, fair.
Lorain 75B, 1½-yd. manganese bucket, LBS #8538.
Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5763.
Esco 2½-yd. cast weld dipper with bail & teeth.

CONCRETE EQUIPMENT

Blaw-Knox gas-electric finisher, 10½'-12½', rebuilt.
Koehring 10'-12' finishers, rebuilt.
Cleveland formgrader, new 1944, rebuilt.
Corr formgrader, new 1944, rebuilt.

TRACTORS

TD-24 International with Bucyrus-Erie angle-blade.
TD9 International diesel with 1 yd. Loadover.
Model CR Tournapull w/16-yd. Model E16 Tournarocker, rebuilt.

WELL DRILLS & TOOLS

Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.
Bits—Stems—Bailers—Sockets—Etc.

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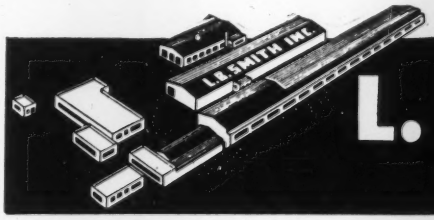

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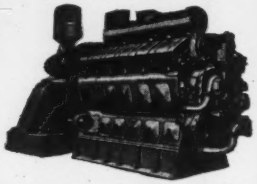

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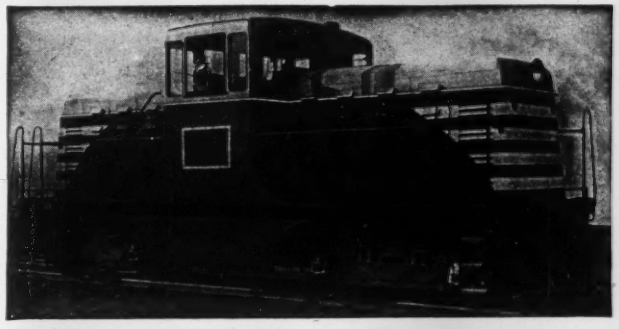

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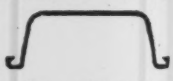

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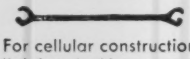

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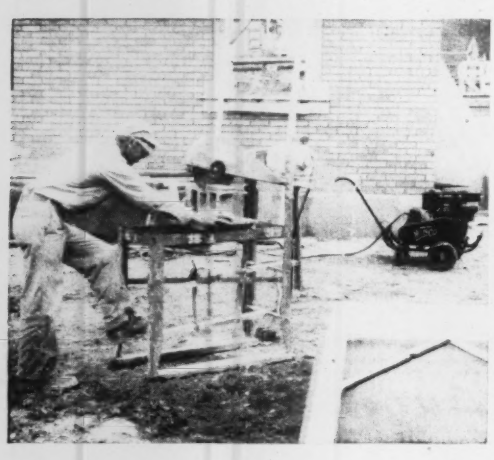


Power anywhere on the job with new portable generator

A host of electric-powered tools is available to speed every phase of construction, but it's often neither practicable nor possible to string wires or run conduit to every section of a job where they can be used. Wincharger Corp. has solved that problem with its new 1800 series Winco portable generators together with "Speedy-Shift" wheel and handle arrangements for quick spotting on even remote sections of a project.

Five models in this 1800 series have watt output of 1000, 1250 or 1350, powered by a Briggs & Stratton 8, Clinton D1100, Cushman M6, Lauson TLH or Wisconsin ABN engine.

In addition they've manufactured Model 4500, a general purpose rig which produces 4500 watts (at 100% P. F.) motor starting capacity and 2500 watts continuously at 115 volts, 60-cycle, ac, single phase.

In the picture at left above a 4500 is being used to power a masonry saw for Chris Hansen Construction Co.'s Grant School addition in Sioux City, Iowa.

The photo at right above shows a Jackson electric vibrator being powered by a Winco 4500 on an undisclosed military project.

The portable generators have proved particularly helpful on bridge jobs where electricity often is not available for vibrators, saws, drills, etc. WINCHARGER CORP., SIOUX CITY 2, IOWA.

Unit combines crusher, mill, screen

Universal Engineering Corporation, Cedar Rapids, Iowa (a division of Pettibone Mulliken Corp.), announces a new addition to its plants. Designed for 100% crushing, this new plant features an 18x30-in. roller bearing jaw crusher, an 18x31-in. hammer mill, and a 4x10-ft three-deck gyrating screen with ball tray. Special by-passes are built in to give product control making it possible to produce aglime, road rock, chips or any simultaneous combination of the three products.

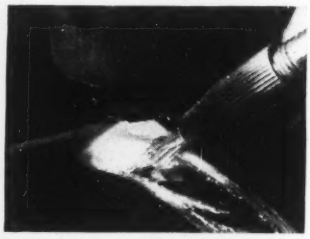
The primary jaw crusher, apron feeder with by-pass, operator's platform, and structural supports are mounted as a separate unit, on skids, which is bolted to the main frame. It can be removed easily when it becomes necessary to cut weight when traveling.

Other features include side drive through universal joint connection from truck mounted power. Feed is direct from shovel or dump trucks from ramp set-up.

With the addition of this new size, the Universal 293QH Limerock plants are now available in balanced combinations with 18x24, 18x30, and 20x36-in. jaw crushers; 18x31 and 26x36-in. hammer mills, and 4x10 and 4x12-ft screens. UNIVERSAL ENGINEERING CORP., 625 C AVENUE N. W., CEDAR RAPIDS, IOWA.

Airco announces automatic Heliweld hardfacing process

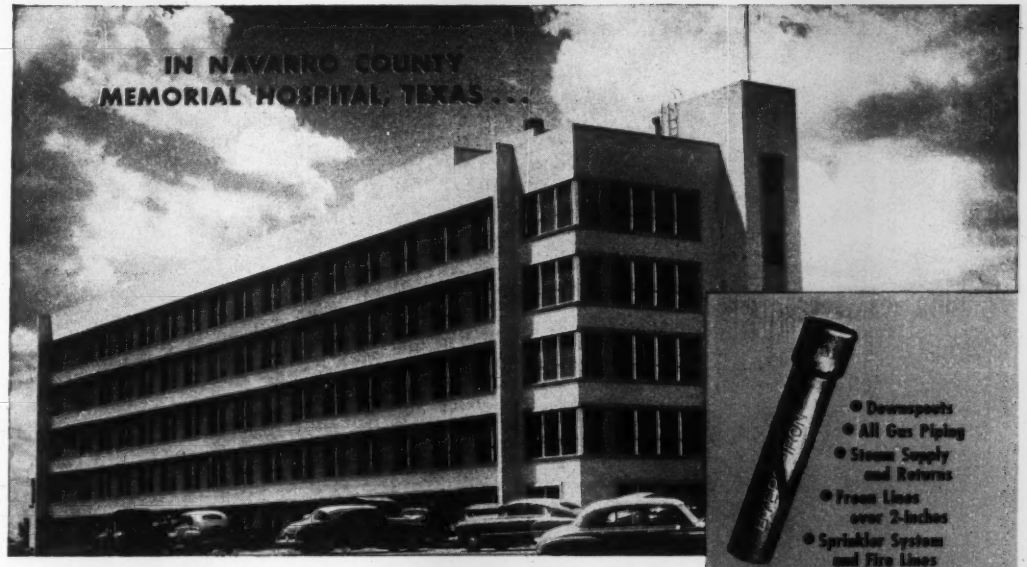
As a result of the need for improved methods in depositing tungsten carbide hardfacing material on tool joints for well-drilling rigs, Air Reduction Sales Co. has developed an automatic Heliweld hardfacing unit. The new process uses a standard Heliweld head and a unit for feeding the bulk tungsten carbide. It's limited only by the ability to position the work and the arc in proper relationship to each other.



In operation, the Heliweld arc melts the base metal, producing an elongated pool and the tungsten carbide particles are poured into this pool behind the arc, as the photo clearly illustrates. The rate of particle feed is accurately controlled by electricity.

According to the manufacturer, tests have repeatedly shown that abrasion

(*Continued to page 138*)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The designers of this modern hospital took every precaution to ban piping ills. In virtually every service they put genuine wrought iron on the job to forestall the maintenance threat of premature failure and costly replacement.

Built under the Hospital Construction Program of the United States Public Health Service, this 100-bed structure is located in Corsicana, Texas. The hospital was designed by W. G. Clarkson & Company, Architects, A. George King, Associate, Fort Worth, Texas. Leonard E. Kanto, Consulting Mechanical Engineer, also of Fort Worth, was responsible for the sound piping specifications. The mechanical contract was awarded to Beals Plumbing and Heating Company, Inc., Fort Worth.

Maintenance records provide plenty of examples of the consequences of using non-durable materials in these services—and of the wisdom of using genuine wrought iron. In a number of reported cases, genuine wrought iron pipe has doubled, tripled and even quadrupled the useful service life previously obtained from low-first-cost piping, and ended maintenance headaches that had been regarded as incurable.

Our bulletin, WROUGHT IRON FOR PIPING SYSTEMS, discusses corrosive conditions encountered in various services, and illustrates a few of the many places where genuine wrought iron has been successfully applied. Write for your copy today.

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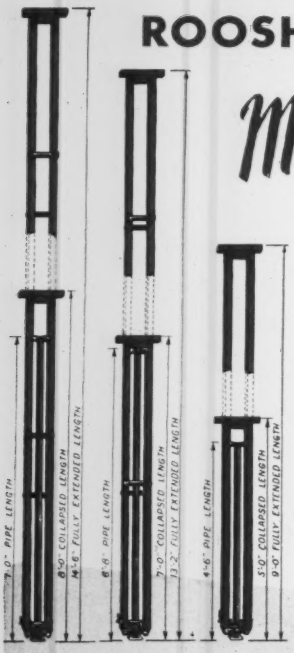

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NEW PRODUCTS

(*Continued from page 136*)
resistance of deposits made by this process is considerably better than that attainable through using other arc methods. AIR REDUCTION SALES CO., 60 EAST 42ND STREET, NEW YORK 17, N. Y.

Angle-type air tools for drilling in light metals

A series of three angle-type drills, to be known as the 11C series, has just been announced by Keller Tool Co. They are powered to drill holes at right angles in aluminum or brass from $\frac{1}{16}$ to $\frac{3}{4}$ in. diameter and in mild steel from $\frac{1}{4}$ to $\frac{13}{16}$ in. diameter, and are especially desirable for close-quarter work, as illustrated, where larger size drills are required. Since they are air-powered, stalling of these drills will not injure them or their air motor.

The series comprises three motors of different speeds and five angle attachments—all interchangeable—so that fifteen variations of speed and chuck sizes are made available. KELLER TOOL COMPANY, GRAND HAVEN, MICHIGAN.

Payloader tractor designed for heavy-duty pushing

If you picture the Hough TM "Payloader" with its front end bucket replaced by a huge steel push plate, you will have a good idea of just what the new Payloader tractor looks like.

Like the regular Payloader, it has full reversing transmission which provides four gear ratios in both forward and reverse; speeds up to 27 miles per hour; a torque converter drive in addition to a friction clutch; rear wheel steer with hydraulic power booster; 16.00-24 tires all around.

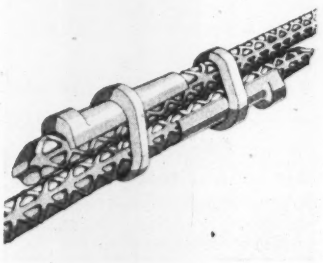
The new rubber-tired tractor is available with either a 106-hp gasoline engine or a 90-hp diesel engine, which

develops up to 16,000 and 14,000 lb drawbar pull, respectively. Total weight is 25,000 lb, and the unit is recommended for heavy-duty drawbar and pushing work.

It makes a flexible, efficient railroad car switcher and spotter for industrial plants and yards, and the manufacturer says it can pull or push 8 to 10 loaded cars. The big earthmover tires walk readily over ties and across tracks and the torque converter assures precise control for careful spotting and slow, steady application of power for starting heavy loads. The Frank G. Hough Company, Seventh Street, Libertyville, Illinois.

Rear half of new trailer tilts for loading machinery

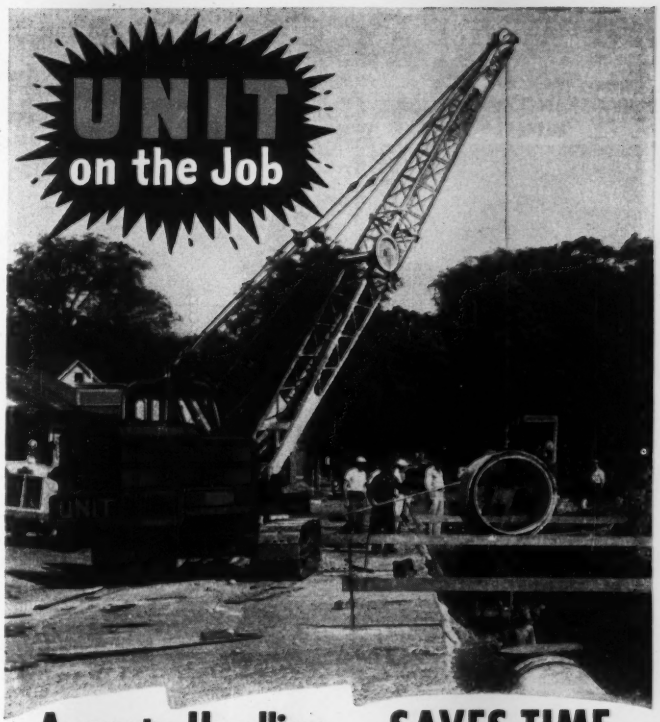
The latest Rogers trailer is a divided-deck gooseneck type which has a longer deck to carry heavier loads of greater area. This divided deck is so well balanced as to be tipped or returned to the traveling position by the weight of one man. A double-acting hydraulic ram checks and cushions the upward and downward movement of the deck. Rogers Bros. Corp., Albion, Penna.



Ring and wedge principle fastens reinforcing bars

An inexpensive clamp which provides an easy, positive union for reinforcing rods utilizes two oval rings as yokes with tapered wedges driven under them in the directions of the stresses. The device binds tighter when tension on the rods is increased, and is said to hold rods firmly during pouring or vibrating of concrete.

The clamps have proved useful in attaching rods to dowels in footings and at corners. They also allow use of short rods in tight spots where long lengths can't be used, as well as in box-type basement walls and floor slabs. Jerome P. Costello Company, 3527 Bevis Avenue, Cincinnati, Ohio



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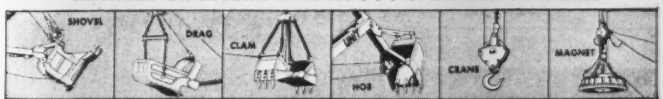

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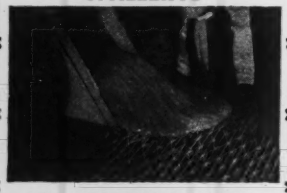

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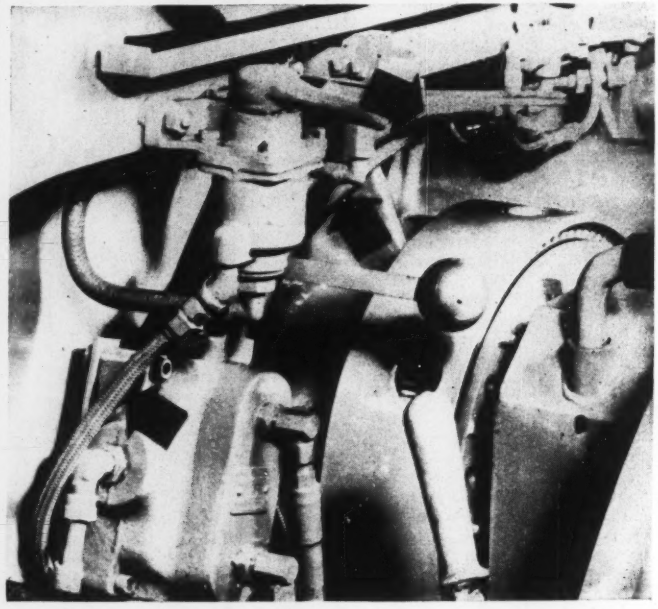


Flexible metal hose solves air line maintenance problems on Unit cranes

On Unit's 357 mobile crane, compressed air is piped from a reservoir tank through two-way brake and transmission control valves, indicated by arrows in the photo, and a vertical propel shaft to a central rotating joint on the undercarriage. From this joint, pressure lines carry the air to the front and rear axle brake pistons and from there to the two-speed, air-operated transmission.

Any air escape on these lines might cause loss of braking power or transmission control. Wear fractures and vibration stresses constantly caused failures in in-field testing.

Engineers from Titeflex Inc. were invited by the Unit Crane and Shovel Corp. to investigate the use of flexible metal hose.

After months of field testing and through thousands of hours of actual operating life on the job, the Titeflex lines have stood up extremely well, according to both manufacturers. The convoluted flexible metal hose with round wire braid reinforcing can readily withstand the constant vibrations set up when the rig is working.

In addition it acts as a vibration absorber to eliminate strain and wear around couplings, where air lines are most prone to fail. TITEFLEX INC., 500 FRELINGHUYSEN AVE., NEWARK 5, NEW JERSEY.

Latest GM development: Air bellows replace springs

A radically new type of coach body suspension—employing air "balloons" instead of leaf springs—was announced by the Truck and Coach Division of General Motors Corp. First use is on coaches, but experiments will continue with other types of transportation. A result of more than 12 years of research and development, the Air Suspension Ride employs eight heavy, flexible air bellows of rubberized nylon tire fabric, two to each wheel, and, at the same time, eliminates conventional metal leaf springs.

Where a metal leaf spring has a uniform rate throughout its deflection, compressed air increases its resistance as it is compressed. Leveling valves automatically meter the compressed air into the system so that, as a vehicle is loaded, it retains its level. With unloading, these valves release the proper amount of air. TRUCK AND COACH DIVISION, GENERAL MOTORS CORP., PONTIAC 11, MICHIGAN.

Improved safety solvents for metal parts degreasing

Orthosene, Per-Trolene and Frigisol are safety solvents for electrical, mechanical and metal parts degreasing and for refrigeration equipment cleaning. All three have been designed to replace carbon tetrachloride and are claimed to be a marked improvement over safety solvents heretofore available.

Orthosene is a slow-drying solvent with a high flash point. It has excellent degreasing qualities and is said to leave no residual oily film.

Per-Trolene is a rapid-drying solvent, with a flash point of 140 deg F. It is designed for wide application in electrical and mechanical maintenance shops where drying and exceptional degreasing qualities are needed.

Frigisol is also a rapid-drying safety solvent, similar in many qualities to Per-Trolene, but also capable of displacing water. It has a flash point of 235 deg F which makes it applicable to many spot locations where lower flash solvents might present fire hazards.

The safety qualities of all three solvents have been improved by eliminating toxic inhibitors, as well as harmful isomers normal to some chlorinated products. JOHN B. MOORE CORPORATION, P. O. BOX #3, NUTLEY 10, N. J.

New Product briefs . . .

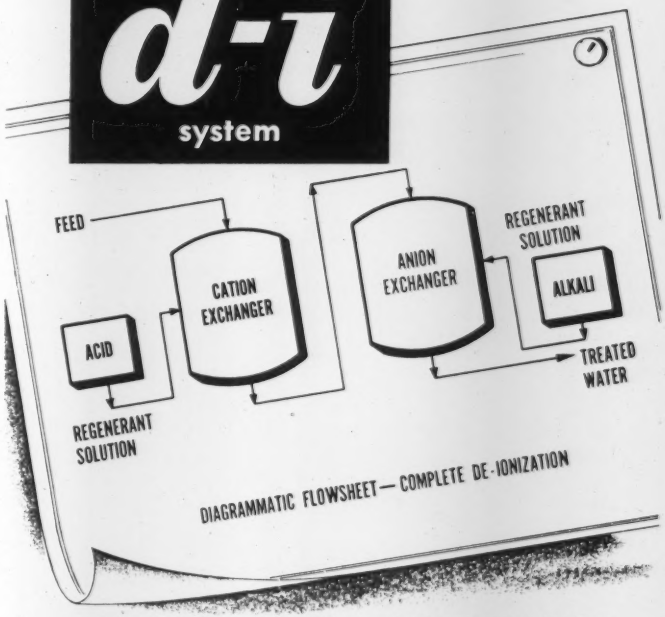
Dart Manufacturing Company, Mason, Michigan is manufacturing a new **steel rule** that's been designed to give more viewing area when taking inside measurements. Readings are seen at indicator points and "anti-pop-out" design keeps blade from creeping in or out. Blades are replaceable in seconds without tools, available in 6-, 8- and 10-ft lengths.

A new **200-ampere, engine-driven dc arc welder** with a 60 percent duty cycle has been announced by the **Welding Department of General Electric Company, Schenectady 5, N. Y.** Designated as Type WD-42AGW, the new welder has a current range of 40 to 250 amperes, and can be used with a variety of electrode sizes for repair, maintenance and construction work.

Two new electric hand drills are now being introduced by the **Porter-Cable Machine Company of Syracuse, N. Y.** One, model 107, is a general duty type with ¼-in. chuck; the other, model 109 has ½-in. capacity for higher resistance work.

Blueprint for Tomorrow's New Processes

the DORRCO d-i system



DIAGRAMMATIC FLOWSHEET—COMPLETE DE-IONIZATION

In processing practically any chemical or petro-chemical you can name, there's the problem of purification or demineralization. It may be purification of water, or any solution bearing sugar, chemical or metallic compounds.

Early in the development of synthetic resins, Dorr started a continuous research program aimed at full development of ion-exchange technique. Today, the Dorrco D-I system can be used to completely remove ionized materials from solutions, to separate ionizable compounds and, by taking advantage of selective exchange, to separate one ionizable salt from another.

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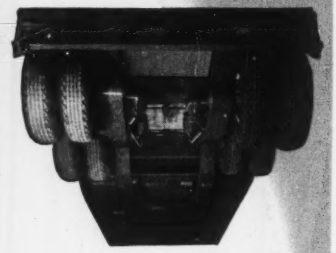

A worms-eye view of the sturdy rear end and frame construction of the famous "T".

The rear end design of the Type "T" has proved so efficient it has been adopted as standard construction in Rogers Power-Lift Detachable Gooseneck Trailers.

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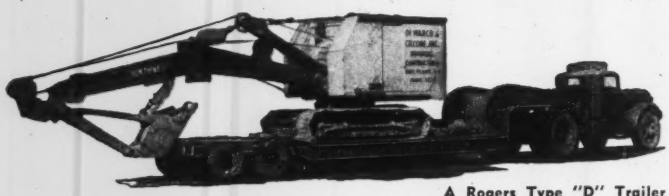

A Rogers Type "D" Trailer

Export Office: 50 Church St., N. Y. 7, N. Y.—Cable address: Brosites

PUBLICATIONS

Aluminum Forming—Anyone who works with metal will find a wealth of information on how to draw and form aluminum sheet, plate, tubing and pipe in this 148-p technical manual. It points out that the most common mistake is the attempt to work and form aluminum by the identical technique used for other metals. While similar techniques may be employed in some operations, others require special procedures, and this compact illustrated book explains them completely. Two important sections are devoted to metallurgical data—one on aluminum sheet and plate; the other on aluminum tubing and pipe.—Reynolds Metals Co., 2500 S. Third St., Louisville, Ky.

Metal Grating—This 24-p booklet is entitled "Open Steel Grating and Stair Tread Catalog" and has been published by the Klemp Metal Grating Corporation. It is fully illustrated and complete with engineering data, charts, and a safe load table for welded and diamond riveted grating. The catalog illustrates the company's feature which is a grating made from round steel crossbars, so formed as to provide a peak, or crest, on the top side of the bar. These bars are placed at right angles on top of flat bearing bars set on edge and then electro-welded under pressure.

Another 4-p catalog is entitled "Klemp 4 Grates Serving the Nation's Major Oil Companies" and describes the construction of the new "Klemp-Krest" welded grating which has been used extensively in fractionating vessels and pipes leading to and from catalyst regenerators.—Klemp Metal Grating Corp., 1371 North Branch St., Chicago 22, Ill.

Guide to Selection of Centrifugal Pumps—Allis-Chalmers' broad line of centrifugal pumps applicable to most industries is highlighted in a newly-released handy guide to selection of centrifugal pumps.

In addition to covering general purpose, double suction, multi-stage, special-purpose, marine and mixed and axial flow pumps, the 12-p bulletin has a head-capacity table for single-stage, double suction A-C pumps.

Special purpose pumps mentioned include solids handling, paper stock, sewage, rubber-lined process, fractional horsepower and coolant and circulating units. Labeled No. 52C6059J, it is available from Allis-Chalmers Manufacturing Co., 840 S. 70th St., Milwaukee, Wis.

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EDITORIAL

Concrete surfacing for roads

Is CONCRETE PAVING becoming simply a top layer for a two, three or even four-layer pavement? That question is raised by the account of New Jersey's field studies of concrete pavements without reinforcing and without expansion joints, published in our issue of Sept. 25, p. 38. The latest of the pavements described in that article consists of a 10-in. thick plain concrete slab laid on 4 in. of crushed stone and 8 in. of bank-run gravel selected and graded to give a high degree of stability. That pavement is on U.S. 22 near Clinton, N.J.

Bituminous materials, quite generally, have been used as a surfacing for a two or three-layer pavement, going back to the days when such materials were used to surface old water-bound macadam roads. But concrete, until fairly recently, was looked upon as a complete paving unit when laid over reasonably stable soils.

Concrete paving was so considered in New Jersey 20 years ago when the State Highway Department began the reconstruction of U.S. 22, the state's major east-west highway, and the one on which the pavement described in our Sept. 25 issue was laid. The base and subbase under the concrete top of that new pavement are believed to have sufficient stability in themselves to carry a considerable part of the traffic load.

Back of this change from a concrete pavement laid on the natural soil to a thicker slab laid on two layers of granular material lies bitter experience with pumping at pavement joints which grew progressively worse as traffic increased in volume and weight. Across all of northern New Jersey, where the greatest volume of heavy traffic must be handled, lie soils of predominantly glacial origin. The better ones, having a fair percentage of granular materials, did not pump under light traffic. So they were used with confidence under concrete laid on U.S. 22 in the earlier years of rebuilding that highway, only to find in later years that pumping began to occur in many places as traffic volume rose.

As a result, bases of granular material were added, first in 8-in. layers and then in thicker layers as experience showed that more depth was needed to prevent pumping or to minimize the effect of frost.

WHAT OF THE FUTURE? Enthusiastic advocates of prestressed concrete already have declared that the next step will be the use of thin slabs of prestressed concrete as a surface layer. As examples of what can be done, they cite Freyssinet's prestressed concrete pavement on Orly Field in France, a prestressed concrete floor slab in the Roebling Company's warehouse in Cicero, Ill., and a diagonally reinforced concrete pavement, 6-in. thick, laid in the town of Crawley in Sussex, England.

We would not be so bold or pessimistic as to say that a prestressed-concrete design less costly than a thick slab of plain concrete will not be developed. However, no one of the prestressed pavements cited by advocates of that method appears to be an answer to the highway designer's problem because of cost or because of the new joint problem the design introduces, or both. The Roebling warehouse design shows no saving in concrete as the 3-in. prestressed slab is laid on a 9-in. plain concrete slab.

Doubtless some prestressed pavement designs will be developed and laid in the not too distant future. But a step that has more immediate promise of being fruitful is a reduction in thickness of the concrete slab to determine whether a surfacing that is adequate structurally can be obtained at less cost by that means. New Jersey already has taken the first step. On Route 25, near Deans, an 8-in. thick reinforced concrete pavement has been laid on a 7-in. base and 5-in. subbase of carefully graded granular material, all of which was laid on a 6-in. subgrade of selected material.

FURTHER STEPS, presumably, might include trial of a 6-in. reinforced-concrete slab and an 8-in. slab of unreinforced concrete similar to the 10-in. slab put down recently on U.S. 22 near Clinton, N.J. That pavement was laid on an unusually substantial base and subbase to offset any structural deficiency resulting from absence of reinforcing in the slab and dowels at the joints. Tests might show that a thinner unreinforced slab would still be adequate on such a substantial base.

Every inch cut off the thickness of the plain concrete slab will make more difficult a demonstration of savings through the use of simple reinforcing or prestressing.

ADDING TO THE SUPPORTING VALUE of the subgrade by stabilizing it with cement, asphalt, lime, or possibly one of the ion-exchange processes now being studied might prove to be a route to further economies. To date, most experience in this field has been on secondary roads not carrying the heavy concentrations of loads and volume of traffic found on main highways.

In California, concrete pavements for main highways now are being laid directly on a soil-cement subgrade. There, however, the objective of cement stabilization is not greater structural support for the pavement. Its purpose is to provide a subgrade that will not wash away under pumping action.

What California learns about the effectiveness of cement stabilization in checking pumping will be helpful, but for regions where frost is a factor, it appears probable that concrete pavement design studies will continue to include one or more layers of granular material of known stability under frost action.

NAVAL YARD SEWAGE PROJECT . . .

Michigan Model C-16, ½ yd. clamshell, equipped with 30-inch crawler pads.

Construction of 4,500 feet of sewage lines to connect the Norfolk Naval Yard system with that of Portsmouth, Virginia, is being handled by A. G. Pinkston Company, Portsmouth. Trenches are 6 feet wide, 6 feet to 16 feet deep and carry 4-inch to 30-inch main and lateral pipe.

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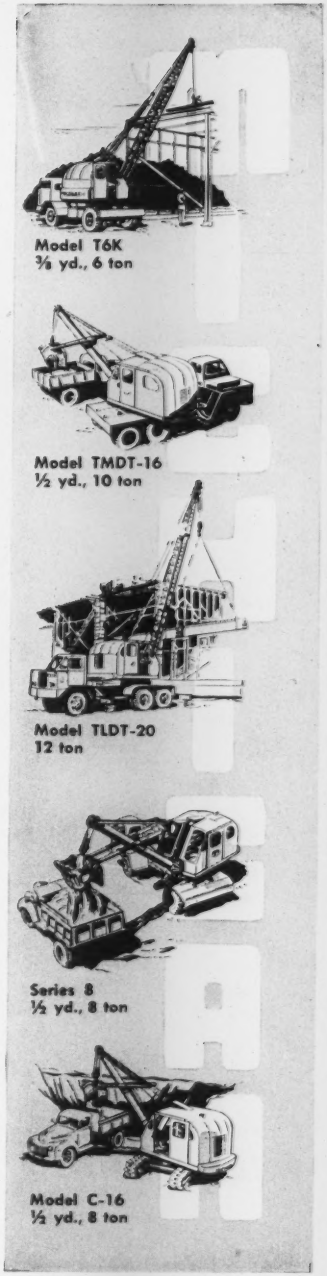

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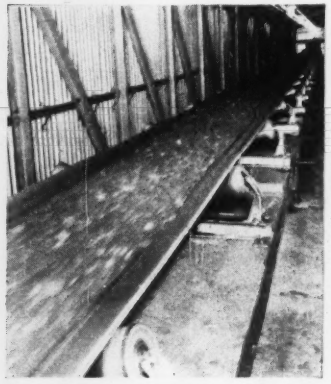
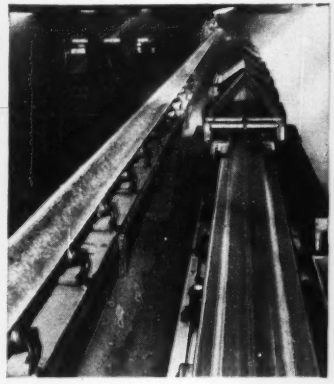


Belt idlers manufactured by Bartlett and Snow Company carry 150 tons of coal per hour at this Midwest power plant. Timken bearings in the idlers assure long idler life with minimum maintenance.



This Chain Belt Company installation at a Wisconsin foundry handles 50 tons of molding sand per hour at a belt speed of 125 ft. per minute. Timken bearings in the Rex idlers make closures more effective, keep lubricant in—dirt and sand out.

8,566 Timken bearings are used in the Barber-Greene idlers of this lime-stone conveyor in Virginia. The conveyor moves 350 tons of crushed lime-stone per hour. Timken bearings reduce friction, take the heavy loads with a minimum of wear.

IT'S TIMKEN... AND TIMKEN... AND TIMKEN AGAIN!

AND HERE ARE 6 BIG REASONS WHY:

1. **THOROUGHLY PROVED.** The Timken bearing is the only tapered roller bearing proved by 15 years or more of service in heavy-duty conveyor installations using the popular dead shaft construction.

2. **EXTRA CAPACITY.** Line contact between rollers and races gives Timken bearings high load capacity. And by using Timken bearing sizes that are mass produced for the automotive industry, you get extra-capacity bearings that actually cost *less* than the smaller sizes you'd normally use.

3. **LONG-LIFE LUBRICATION.** Not just lubricated for "life", but lubricated yearly, or as conditions require, to insure *long* life. Fresh lubricant ends any chance of gummy, sticky, jammed bearings.

4. **LONGER ROLLER AND BELT LIFE.** Less sliding and scuffing between idlers and belt.

5. **FRICTION MINIMIZED.** Timken bearings' true rolling motion and extremely smooth surface finish practically eliminate friction.

6. **MAINTENANCE REDUCED.** Long life and dependable performance of Timken tapered roller bearings cut maintenance to a minimum.

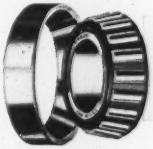
Remember "Timken" is not a bearing type. It is a trade-mark applying only to bearings made by The Timken Roller Bearing Company. Always insist on Timken bearings in the conveyors you build or buy. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

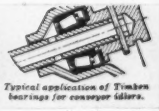
Wherever the going's tough industry turns to

TIMKEN

TRADE-MARK REG. U.S. PAT. OFF.

TAPERED ROLLER BEARINGS





Typical application of Timken bearings for conveyor idlers.

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◫ AND THRUST ◫ LOADS OR ANY COMBINATION ✳